

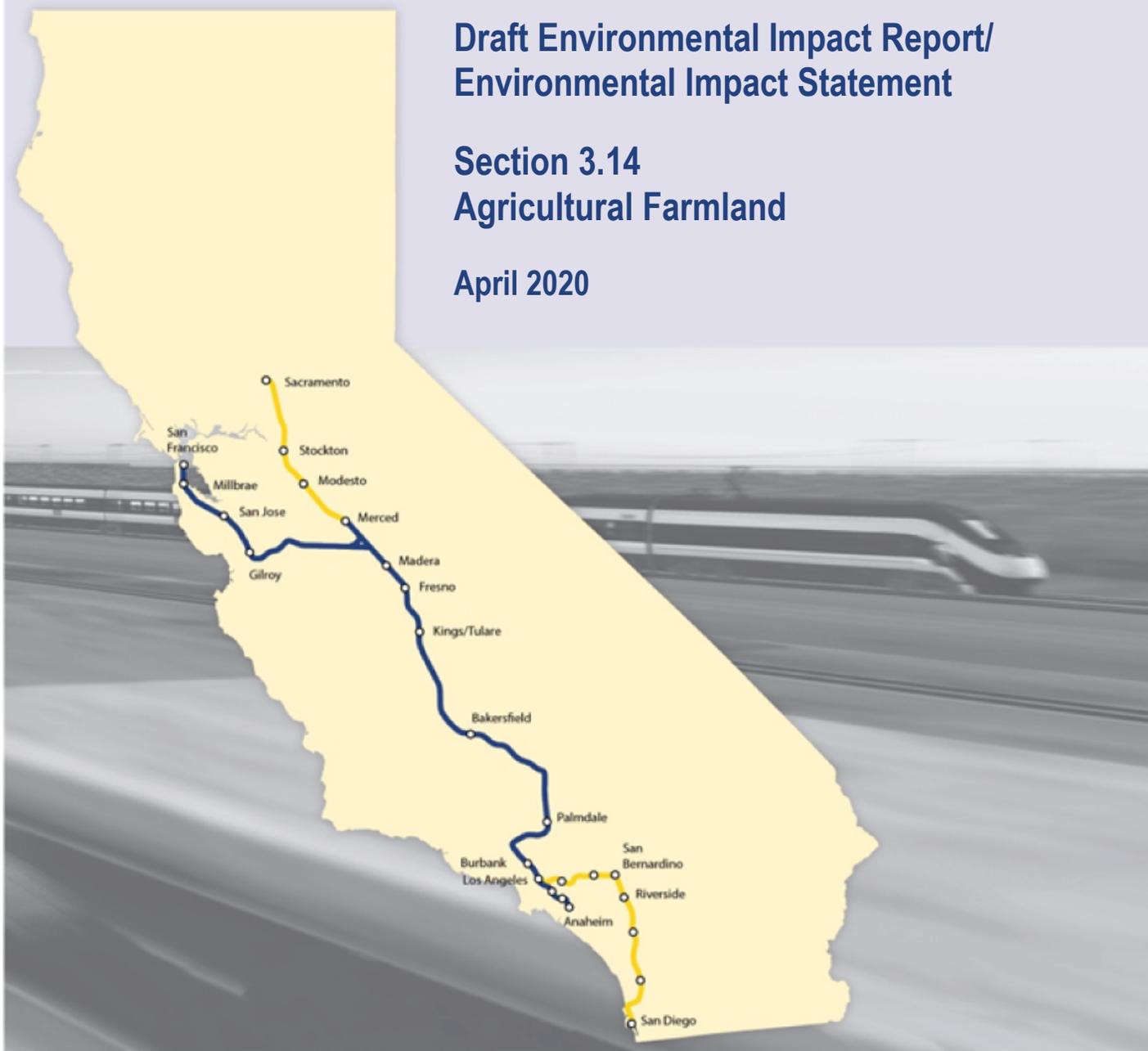
California High-Speed Rail Authority

San Jose to Merced *Project Section*

Draft Environmental Impact Report/
Environmental Impact Statement

Section 3.14
Agricultural Farmland

April 2020



The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
ATC	automatic train control
Authority	California High-Speed Rail Authority
C.F.R.	Code of Federal Regulations
Cal. Public Res. Code	California Public Resources Code
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
DOC	California Department of Conservation
EIR	environmental impact report
EIS	environmental impact statement
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FSZ	Farmland Security Zone
GIS	geographic information system
HSR	high-speed rail
I-	Interstate
IAMF	impact avoidance and minimization feature
LESA	Land Evaluation and Site Assessment
mph	miles per hour
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act
NRCS	Natural Resource Conservation Service
PG&E	Pacific Gas & Electric
project extent, project	San Jose to Merced Project Extent
PTC	positive train control
RSA	resource study area
SLDMWA	San Luis and Delta-Mendota Water Authority
SR	State Route
SVP	Silicon Valley Power
TCE	temporary construction easements
U.S.C.	United States Code
UPRR	Union Pacific Railroad
US	U.S. Highway
Williamson Act	California Land Conservation Act of 1965

3.14 Agricultural Farmland

3.14.1 Introduction

This section describes agricultural farmland resources, including Important Farmland (see Section 3.14.1.1, Definition of Terminology, for definition of Important Farmland) and farmland protected by the Williamson Act, in the San Jose to Central Valley Wye Project Extent (project extent or project) resource study area (RSA), where agricultural farmland is most susceptible to conversion to nonagricultural uses as a result of potential direct or indirect impacts from the construction and operation of the project.

There are no agricultural conservation easements or forest lands in the RSA; therefore, they are not discussed further in this section.

The *San Jose to Merced Project Section Agricultural Farmland Technical Report* (Authority 2019) provides additional technical details for agricultural farmland resources.

The following appendices in Volume 2 of this Draft environmental impact report (EIR)/environmental impact statement (EIS) provide additional details on agricultural farmland resources:

- Appendix 2-D, Applicable Design Standards, describes the relevant design standards for this project.
- Appendix 2-E, Project Impact Avoidance and Minimization Features, provides the list of all impact avoidance and minimization features (IAMF) incorporated into the project.
- Appendix 2-J, Regional and Local Plans and Policies, provides a list by resource of all applicable regional and local plans and policies.
- Appendix 2-K, Policy Consistency Analysis, provides a summary by resource of project inconsistencies and reconciliations with local plans and policies.
- Appendix 3.14-A, Parcels Containing Important Farmland in the San Jose to Central Valley Wye Project Resource Study Area, provides a list of parcels in the RSA containing Important Farmland.
- Appendix 3.14-B, Results and Findings of Land Evaluation and Site Assessment Pursuant to Farmland Preservation Policy Act, provides an assessment prepared jointly by the Natural Resources Conservation Service (NRCS) and the California High-Speed Rail Authority (Authority) of the potential conversion impacts on farmland and farm support services.
- Appendix 3.14-C, Remnant Parcel Analysis, provides a list and mapbooks showing remnant parcels that each alternative would create and an analysis of the viability of each remnant parcel for remaining in agricultural use, based on its configuration, adjacency to other agricultural parcels, and other criteria described in Section 3.14.4, Methods for Evaluating Impacts.
- Appendix 3.14-D, Induced Wind Impacts: Effects on Pollination; Blossoms and Dust, provides an analysis of potential impacts of increased wind speed adjacent to the high-speed rail (HSR) right-of-way.
- Appendix 3.14-E, Williamson Act Compliance Data, provides (1) a summary of acres and number of parcels under Williamson Act contract that would be removed from agricultural

Agricultural Farmland—Key Issues

Direct impacts on Important Farmland

- Temporary use of Important Farmland during construction
- Permanent conversion of Important Farmland to nonagricultural uses

Indirect impacts on Important Farmland

- Permanent creation of remnant parcels of Important Farmland during construction
 - Temporary and permanent disruption of agricultural infrastructure affecting Important Farmland during construction
 - Permanent interference with aerial spraying activities for Important Farmland during construction
 - Permanent wind-induced impacts on Important Farmland during operations
 - Potential interference with implementation of Williamson Act contracts
-

use, (2) a list of parcels, by project alternative and subsection, under Williamson Act contract, both under contract renewal and contract nonrenewal, that would be removed from agricultural use, (3) the county-specific parcel size thresholds for Williamson Act contracts for Santa Clara, San Benito, and Merced Counties, and (4) a summary of acres and number of remainder parcels outside the project footprint that would be under the respective county threshold for coverage under Williamson Act contract following construction of the project.

Agricultural farmland, including Important Farmland and land protected by the Williamson Act, is a primary sector of the economy in Santa Clara, San Benito, and Merced Counties. Of interest on a larger geographic scale, the San Joaquin Valley is one of the most important agriculture centers in California and the nation with many of the nation's top-producing agricultural counties (American Farmland Trust 2013). The top 10 crops in Merced County in 2014 were milk, almonds, cattle and calves, chickens, sweet potatoes, tomatoes, silage, hay, eggs, and cotton (County of Merced 2015a). The following Draft EIR/EIS resource sections provide additional information related to agricultural farmland resources:

- Section 3.2, Transportation, evaluates impacts of the project alternatives on temporary and permanent road closures.
- Section 3.4, Noise and Vibration, evaluates impacts of the project alternatives on livestock from noise and vibration, including livestock on grazing land, dairies, and in confined animal agricultural facilities.
- Section 3.6, Public Utilities and Energy, evaluates impacts of the project alternatives on water delivery from irrigation pipelines, canals, and natural waterways.
- Section 3.8, Hydrology and Water Resources, evaluates impacts of the project alternatives on surface water and groundwater, both sources of irrigation water.
- Section 3.12, Socioeconomics and Communities, evaluates impacts of the project alternatives on agricultural economics, potential employment associated with agricultural land conversion, and confined animal agricultural facilities, including potential impacts on dairy wastewater disposal areas.
- Section 3.13, Station Planning, Land Use, and Development, evaluates impacts of the project alternatives on agricultural zoning and future urban development on farmlands.

3.14.1.1 Definition of Terminology

Agricultural land includes Important Farmland and Williamson Act contract lands defined as follows.

Important Farmland

Important Farmland is defined under the federal Farmland Protection and Policy Act (7 Code of Federal Regulations [C.F.R.] Part 658) and includes Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands, and Farmlands of Local Importance. The categories are defined according to the U.S. Department of Agriculture land inventory and monitoring criteria, as modified for the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP):

- **Prime Farmland**—Prime Farmland is land with the best combination of physical and chemical features to sustain long-term agricultural crop production. These lands have the soil quality, growing season, and moisture supply necessary to produce sustained high yields. Soil must meet the physical and chemical criteria determined by the NRCS. Prime Farmland must have been used for production of irrigated crops at some time during the 4 years prior to the FMMP mapping date.
- **Farmland of Statewide Importance**—Farmland of Statewide Importance is similar to Prime Farmland but with minor differences, such as having greater slopes or soils with a lesser ability to store moisture. Farmland of Statewide Importance must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date.

- **Unique Farmland**—Unique Farmland has soils of lesser quality than Prime Farmland or Farmland of Statewide Importance. Unique Farmland is used for producing the state’s leading agricultural crops. These lands usually are irrigated but may include nonirrigated orchards or vineyards found in some climatic zones. Unique Farmland must have been used for crops at some time during the 4 years prior to the mapping date.
- **Farmland of Local Importance**—Farmland of Local Importance is farmland that is important to the local agricultural community as determined by each county’s board of supervisors and local advisory committees.

Williamson Act Contract Lands

The California Land Conservation Act of 1965 (California Government Code § 51200 et seq.), commonly referred to as the Williamson Act, provides a reduced tax rate to landowners who establish voluntary enrollment of agricultural and open-space land into contracts with local governments. This program restricts the land under contract to agricultural and open-space uses and compatible uses.

- **Williamson Act contracts**—Williamson Act contracts are for periods of 10 years and longer, renewing automatically each year to maintain a constant, 10-year contract. The participating landowner, and only a landowner, may choose to initiate a nonrenewal of their contract, in which case the contract would terminate 9 years after the filing of a notice of nonrenewal. Land under Williamson Act contract does not necessarily correspond with parcel boundaries, and such land can be classified as Important Farmland or other types of land. Impacts on lands under these preservation regulations could further contribute to conversion of Important Farmland to nonagricultural uses. Williamson Act contracts are not limited to lands classified as Important Farmland and may also apply to other types of agricultural land (such as grazing land), open space, and solar energy farms.
- **Farmland Security Zone**—Farmland Security Zone (FSZ) contracts are another option in the Williamson Act program. FSZ contracts offer landowners greater property tax reductions with a minimum term of 20 years. FSZ contracts are renewed annually unless an owner files a notice of nonrenewal. However, Santa Clara, San Benito, and Merced Counties do not participate in the FSZ program and no FSZ contracts exist in these counties.
- **Local agricultural zoning**—A part of the administration of the Williamson Act at the local level, counties and cities adopt local agricultural zoning consistent with the limitations on nonagricultural use established by the state law. This zoning includes the establishment of agricultural preserves, which encompass the lands under contract. California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses in any agricultural preserve.

Conservation Easement Lands

Conservation easement lands are lands that have been dedicated to agricultural use under the California Farmland Conservation Program Act (California Public Resources Code [Cal. Public Res. Code] §§ 10200–10277). The term *agricultural conservation easement* means an interest in land, less than fee simple that represents the right to prevent the development or improvement of the land for any purpose other than agricultural production. The easement is granted for the California Farmland Conservancy Program by the owner of a fee simple interest in land¹ to a local government, nonprofit organization, resource conservation district, or to a regional park or open-space district or regional park or open-space authority that has the conservation of farmland among its stated purposes or as expressed in the entity’s locally adopted policies. It is granted in perpetuity and runs with the land. The landowner may make a request to the DOC that the easement be reviewed for possible termination 25 or more years from the date of sale of the

¹ A fee simple interest in land is a permanent and absolute tenure in an estate of land with freedom to possess it, to use it, and dispose of it at will.

agricultural conservation easement. There are currently no agricultural conservation easements in the RSA.

3.14.2 Laws, Regulations, and Orders

Federal and state laws, regulations, and orders applicable to agricultural farmland resources affected by the project are presented in this section. The Authority would implement the HSR system, including the project, in compliance with all federal and state regulations. Regional and local plans and policies relevant to agricultural farmland considered in the preparation of this analysis are provided in Volume 2, Appendix 2-J.

3.14.2.1 Federal

Farmland Protection Policy Act of 1981 (7 U.S.C. §§ 4201–4209 and 7 C.F.R. Part 658)

The Farmland Protection Policy Act (FPPA) is intended to protect farmland and requires federal agencies to coordinate with the NRCS if their activities may irreversibly convert farmland to nonagricultural use, either directly or indirectly. The stated purpose of the FPPA is to “minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses.” The FPPA requires federal agencies to examine potential direct and indirect effects of a proposed action and its alternatives on farmland before approving any activity that would convert farmland to nonagricultural use. The U.S. Department of Agriculture issues regulations to implement the FPPA.

For the purpose of FPPA, Important Farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance, as defined by Section 1540(c)(1) of the FPPA. Classification standards differ from state to state; each state may set its own criteria for classification in each category. Federal farmland classification criteria may differ from those developed by the DOC, which are described in Section 3.14.2.2, State. State farmland subject to FPPA requirements includes forest land, pastureland, cropland, or other land but does not include water or urban built-up land.

The FPPA exempts the following land types:

- Soil types not suitable for crops, such as rocky terrain or sand dunes.
- Sites where the project's right-of-way is entirely within a delineated urban area and the project requires no prime or unique farmland, nor any farmland of statewide or local importance.
- Farmland that has already been converted to industrial, residential, or commercial use or is used for recreational activity.

The FPPA applies to projects and programs sponsored or financed in whole or in part by the federal government. FPPA implementing regulations identify requirements to ensure that federal programs, to the extent practical, are compatible with state, local, and private programs and policies to protect farmland. The FPPA requires a rating of farmland conversion impacts based on Land Evaluation and Site Assessment (LESA) criteria identified in 7 C.F.R. Section 658.5. These criteria are addressed through completion of a Farmland Conversion Impact Rating for Corridor Type Projects form (NRCS-CPA-106), which requires input from both the federal agency involved and from NRCS.

Land and Resource Management Plans

The San Luis Reservoir State Recreation Area Resource Management Plan (USBR and California Department of Parks and Recreation 2013) sets forth management goals for the various lands and waters in its plan area, which covers 27,000 acres near the San Luis Reservoir and Los Banos over a range of resource types. Agricultural and forestry resources are not managed by the plan. Under the required National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) environmental analysis, the plan was found to have no impact on agricultural resources.

3.14.2.2 State

California Land Conservation Act of 1965 (California Government Code § 51200 et seq.)

The California Land Conservation Act of 1965 (Williamson Act) is described in Section 3.14.1.1, Definition of Terminology.

Farmland Mapping and Monitoring Program

The FMMP is the only statewide agricultural land use inventory conducted on a regular basis. The DOC administers the FMMP, under which it maintains an automated map and database system to record changes in agricultural land use. Important Farmland, as defined under the FMMP, comprises several categories of farmland that are described in Section 3.14.1.1.

The FMMP focuses on agricultural land that has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained yields of crops. Farmland of Local Importance can cover a broader range of agricultural uses. It is initially identified by a local advisory committee convened in each county by the DOC in cooperation with the NRCS and the county board of supervisors.

California Farmland Conservation Program Act (Cal. Public Res. Code § 10200 to 10277)

The California Farmland Conservation Program Act provides a mechanism for the DOC to establish agricultural conservation easements on farmland, as described in Section 3.14.1.1.

California Conservation Easement Law (Civil Code §§ 815–816)

The Conservation Easement Law provides for the establishment of permanent easements on land for the purpose of “retain[ing] land predominantly in its natural, scenic, historical, agricultural, forested, or open-space condition” (Civil Code § 815.1). Such easements can be granted by willing property owners to nonprofit land trusts, governmental entities, and Native American tribes.

Typically, conservation easements are held by nonprofit land trusts, conservancies, and governmental entities (such as an open-space district or open-space authority) for protecting agricultural land. The terms of the easements, including the allowable uses of the land, depend on the agreement made with the property owner granting the easement.

California General Plan Law (California Government Code § 65300 et seq.)

General Plan Law requires each city and county to adopt “a comprehensive, long-term general plan for the physical development of the county or city, and of any land outside its boundaries which in the planning agency’s judgment bears relation to its planning” (California Government Code § 65300). The general plan must identify the density and intensity of land uses within the jurisdiction’s planning area. Furthermore, it establishes local policy regarding the pattern of future land uses, including agriculture. State law mandates that each general plan include at least seven elements, of which the conservation and open-space elements typically include goals, objectives, and policies relating to agricultural farmland.

Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375)

Senate Bill 375, the Sustainable Communities and Climate Protection Act of 2008 (Chapter 728, Statutes of 2008), provides a new planning process to coordinate community development and land use planning with regional transportation plans in an effort to reduce sprawling land use patterns and dependence on private vehicles, and thereby reduce vehicle miles traveled and greenhouse gas emissions associated with vehicle miles traveled. Senate Bill 375 is one major tool being used to meet the goals in Assembly Bill 32, the Global Warming Solutions Act (Chapter 488, Statutes of 2006). Under Senate Bill 375, the California Air Resources Board sets greenhouse gas emission reduction targets for 2020 and 2035 for the metropolitan planning organizations in the state. Each organization must then prepare a sustainable communities strategy that meets the greenhouse gas emission reduction targets set by the California Air Resources Board. The strategy must address regional transportation, land use, resource and

agricultural land, and housing considerations. Once adopted, the strategy is incorporated into the region's regional transportation plan.

3.14.2.3 *Regional and Local*

At the local level, counties and cities adopt local agricultural zoning consistent with the limitations on nonagricultural use established by the state law. Volume 2, Appendix 2-J lists the regional and local plans and describes the policies adopted by the cities and counties in the RSA that were identified and considered in the preparation of this analysis.

3.14.3 Consistency with Plans and Laws

As indicated in Section 3.1.3.3, Consistency with Plans and Laws, the CEQA and Council on Environmental Quality (CEQ) regulations require a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. Accordingly, this Draft EIR/EIS describes the inconsistency of the project alternatives with federal, state, regional, and local plans and laws to provide planning context.

There are a number of federal and state laws and implementing regulations, listed in Section 3.14.2.1, Federal, and Section 3.14.2.2, State, that direct the identification and preservation of land particularly suitable for agricultural use. There are also several adopted federal and state management plans and programs that pertain to agricultural resources and are applicable to this Draft EIR/EIS. The following federal and state requirements were considered in this analysis:

- Federal and state acts and laws that promote identification and preservation of land that is particularly well suited for agricultural use include the federal FPPA and the state FMMP. The federal FPPA uses the NRCS LESA procedure to determine a farmland conversion impact rating for a proposed project. The state FMMP maps and classifies agricultural land according to its characteristics under the FPPA, including land identified as Important Farmland under the FMMP.
- State acts and laws that protect agricultural land through landowner contract include the Williamson Act and the California Farmland Conservancy Program Act.

The Authority, as the lead agency proposing to construct and operate the HSR system, is required to comply with all federal and state laws and regulations and to secure all applicable federal and state permits prior to initiating construction on the selected alternative. Therefore, there would be no inconsistencies between the project alternatives and these federal and state laws and regulations.

The Authority is not required to comply with local land use and zoning regulations; however, it has endeavored to design and construct the project so that it is compatible with land use and zoning regulations. For example, the project alternatives incorporate IAMFs to minimize the amount of agricultural land that would be converted from agricultural use to nonagricultural use. Analysts reviewed 22 plans and 113 local and regional goals, objectives, policies, and ordinances. The project alternatives would be consistent with all but 24 of the total 89 goals, objectives, policies, and ordinances set forth in the following regional and local plans and laws. The project alternatives would be inconsistent with the following plans and policies:

- **Plan Bay Area 2040** (ABAG and MTC 2017)—Goal Open Space and Agricultural Preservation. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **Santa Clara County General Plan, 1995–2010** (County of Santa Clara 1994)—Policies C-RC37, C-RC 40, R-GD 1.1, R-GD 3e, R-RC 40b, R-RC 57c, R-LU 8, SC 14.4, R-RC 61, R-LU 11, R-LU 3. Construction of the project would permanently convert Important Farmland for operational infrastructure; not serve as an agricultural use; and not provide direct or indirect support to agricultural farmland.
- **Santa Clara County Code of Ordinances** (2018)—Construction of the project would permanently convert Important Farmland for operational infrastructure.

- **Envision San José 2040** (City of San Jose 2011)—Policies LU-20.1, LU-20.9. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **Morgan Hill 2035 General Plan** (City of Morgan Hill 2016)— Policy NRE-1.4. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **Morgan Hill ZA-14-11 Agricultural Mitigation Ordinance** (2015)—Policy 1. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **Gilroy 2020 General Plan** (City of Gilroy 2002)— Policy 4.02. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **2035 San Benito County General Plan** (County of San Benito 2015)—Policies LU-3.2, LU-3.12, NCR-1.1. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **2030 Merced County General Plan** (County of Merced 2013)—Policy AG-2.16. Construction of the project would permanently convert Important Farmland for operational infrastructure.
- **City of Los Banos 2030 General Plan Update** (City of Los Banos 2009)—Policy POSR-G-8, POSR-I-28. Construction of the project would permanently convert Important Farmland for operational infrastructure.

Volume 2, Appendix 2-K further details the project’s inconsistency with these local and regional agricultural policies. It also includes a discussion of approaches the Authority has committed to take to reconcile any inconsistency as well as the rationale for carrying forth the project where it remains inconsistent with the policy despite these approaches.

3.14.4 Methods for Evaluating Impacts

The evaluation of impacts on agricultural farmland resources is a requirement of NEPA and CEQA. The following sections summarize the RSAs and the methods used to determine the impacts of construction and operations on agricultural farmland resources. As summarized in Section 3.14.1, Introduction, other resource sections in this Draft EIR/EIS provide additional information related to agricultural farmland resources.

3.14.4.1 Definition of Resource Study Area

The RSA constitutes the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The RSA for impacts on agricultural farmland encompasses the areas where direct and indirect impacts would result in conversion of Important Farmland to a nonagricultural use. Direct impacts include temporary use, which would occur in the temporary construction easements (TCE) for the alternatives, and permanent conversion of Important Farmland, which would be confined to the project footprint where construction and operations of the project would occur, including associated communications network upgrades. Temporary impacts related to disruption of agricultural infrastructure serving Important Farmland would occur in and adjacent to the TCEs. Indirect impacts would increase the amount of Important Farmland conversion beyond that needed for use in the project footprint, such as by creation of remnant parcels of Important Farmland, impacts on aerial pesticide applications related to construction of communication towers, and impacts of HSR-generated wind on insect pollination or aerial pesticide applications. Therefore, the RSA comprises the project footprint for each project alternative and additional areas beyond the project footprint where potential conversion of Important Farmland would occur.

3.14.4.2 Impact Avoidance and Minimization Features

IAMFs are project features that are considered to be part of the project and are included as applicable in each of the alternatives for purposes of the environmental impact analysis. The full text of the IAMFs that are applicable to the project is provided in Volume 2, Appendix 2-E. The following IAMFs are applicable to the agricultural farmland analysis:

- AG-IAMF#1: Restoration of Important Farmland Used for Temporary Staging Areas

- AG-IAMF#3: Farmland Consolidation Program
- AG-IAMF#4: Notification to Agricultural Property Owners
- AG-IAMF#5: Temporary Livestock and Equipment Crossings
- AG-IAMF#6: Equipment Crossings
- HYD-IAMF#1: Storm Water Management
- HYD-IAMF#3: Prepare and Implement a Construction Stormwater Pollution Prevention Plan
- HYD-IAMF#4: Prepare and Implement an Industrial Stormwater Pollution Prevention Plan
- PUE-IAMF#2: Irrigation Facility Relocation
- PUE-IAMF#3: Public Notifications
- PUE-IAMF#4: Utilities and Energy
- TR-IAMF#2: Construction Transportation Plan

This environmental impact analysis considers these IAMFs as part of the project design. In Section 3.14.6, Environmental Consequences, each impact narrative describes how these project features are applicable and, where appropriate, effective at avoiding or minimizing potential impacts to less than significant under CEQA.

3.14.4.3 Methods for Impact Analysis

Overview of Impact Analysis

This section describes the sources and methods the Authority used to analyze potential project impacts on agricultural farmland. These methods apply to both NEPA and CEQA analyses unless otherwise indicated. Refer to Section 3.1.5.4, Methods for Evaluating Impacts, for a description of the general framework for evaluating impacts under NEPA and CEQA. Project inconsistencies and conflicts with regional and local plans and policies that regulate agricultural farmland (Volume 2, Appendix 2-K) also were considered in this analysis.

The following sources were used to analyze impacts on agricultural farmland:

- Spatial data were obtained from the DOC for Santa Clara, San Benito, and Merced Counties to identify subcategories of Important Farmland as recognized under the FMMP (Section 3.14.4.1, Definition of Resource Study Areas).
- Spatial data for farmland protected under Williamson Act² contracts were obtained from Santa Clara, San Benito, and Merced Counties.

Using geographic information system (GIS) software, this information provided the basis for calculating acreages associated with direct and indirect impacts on agricultural farmland and mitigation acreage calculations.

Important Farmland

The following potential direct and indirect construction impacts and indirect operation impacts on Important Farmland were evaluated:

- Direct impacts on Important Farmland
 - Temporary use of Important Farmland during construction
 - Permanent conversion of Important Farmland to nonagricultural use
- Indirect impacts on Important Farmland
 - Permanent creation of remnant parcels of Important Farmland during construction
 - Temporary and permanent disruption to agricultural infrastructure serving Important Farmland during construction

² Santa Clara, San Benito, and Merced Counties do not have Farmland Security Zone programs; therefore impacts are not evaluated in this EIR/EIS.

- Permanent interference with aerial spraying activities for Important Farmland from construction
- Permanent wind-induced impacts on Important Farmland during operations

Important Farmland Temporary Use and Permanent Conversion

To calculate the acreage of direct temporary use of Important Farmland for each project alternative, the spatial data were overlaid with the area of construction disturbance under each alternative (Volume 2, Appendix 3.14-A).

To calculate the acreage of direct permanent conversion of Important Farmland for each project alternative, the spatial data were overlaid with the project footprint, assuming that all Important Farmland in the project footprint would be permanently converted to a nonagricultural use.

Land Evaluation and Site Assessment

As stated in Section 3.14.2.1, the FPPA requires federal agencies to coordinate with the NRCS if their activities may irreversibly convert farmland to other uses, either directly or indirectly. Accordingly, the Authority has consulted with the NRCS to conduct LESA to determine the farmland conversion impact rating. This rating indicates the degree of direct and indirect permanent farmland conversion based on a range of factors. In accordance with the FPPA, Form NRCS-CPA-106 was completed with NRCS staff help for all four alternatives and for each county to determine the farmland conversion impact rating (Volume 2, Appendix 3.14-B). Table 3.14-1 shows the criteria evaluated in Form NRCS-CPA-106 for each type of impact.

Table 3.14-1 Criteria Evaluated in Form NRCS-CPA-106 for LESA

Issue	Criteria on Form
Conversion of important farmland	(A), (C) Total acres of Prime Farmland, Farmland of Statewide Importance, and Not Prime Farmland (as categorized by NRCS) to be directly converted (quantitative)
	(1) Area in nonurban use: portion of the area within a radius of 1.0 mile of the proposed project corridor that is currently in nonurban use (quantitative)
	(2) Perimeter in nonurban use: length of the perimeter of the proposed project corridor that is currently in nonurban use (quantitative)
	(3) Percent of corridor being farmed: percentage of the proposed project corridor that has been in agricultural production for more than 5 of the past 10 years (qualitative)
	(5) Size of present farm unit compared to average: size of average farm unit in the project corridor compared to average farm size in the respective county (quantitative)
Conversion of land protected by state and local government	(4) Protection provided by state and local government: total acres of land protected by Williamson Act, to be converted, and acreage of remainder parcels (quantitative)
Creation of severed and remnant parcels	(6) Creation of nonfarmable farmland: the acreage of nonviable severed and remnant parcels created (quantitative)
Current availability of farm support services	(7) Availability of farm support services: current availability of farm suppliers, equipment dealers, processing and storage facilities, etc. (qualitative)
Current on-farm investments	(8) On-farm investments: presence of substantial and well maintained on-farm investments such as barns, irrigation, drainage, fruit trees, or other permanent capital fixtures (quantitative)

Issue	Criteria on Form
Effects of conversion on farm support services	(9) Effects of conversion on farm support services: acreage of converted land from the proposed action with potential to jeopardize continued existence of these farm support services (qualitative)
Compatibility of proposed action with existing agricultural use	(10) Compatibility with existing agricultural use: whether the proposed action is sufficiently incompatible with agricultural use that it is likely to lead to eventual conversion of surrounding farmland (qualitative)

The maximum possible score on Form NRCS-CPA-106 is 260 points. If the score is less than 160 points, the FPPA requires no further evaluation. If the score is greater than 160, the law requires consideration of alternatives that avoid or minimize farmland impacts. The FPPA does not mandate the adoption of such alternatives, only that such alternatives be considered.

Important Farmland Remnant Parcel Analysis

Analysts with expertise in agricultural land use and land values used GIS software to identify remnant parcels of Important Farmland of less than 20 acres following severance as a result of project construction. Analysts then evaluated each of these potential remnant³ parcels using the following criteria to identify which parcels were not expected to remain in use as Important Farmland. Parcels meeting these criteria in the analysts' judgment were considered nonviable remnants and assumed to be converted from agricultural use to a nonagricultural use because of severance by the project alternatives (Volume 2, Appendix 3.14-C).

- Access—Would the project restrict or eliminate access to the parcel such that it could no longer continue in agricultural use (e.g., with proposed roadway closure/severance, with permanent fencing around tracks or electrical stations)?
- Size and shape—Is the parcel not adjacent to a parcel currently being farmed, and could it not be readily consolidated with the adjoining land? Would the project create a parcel too oddly shaped to be viable for agriculture, even if combined with adjacent agricultural parcels?
- Location—Would the location of the parcel relative to other farmland indicate it could not be readily consolidated and would be converted to a nonagricultural use?
- Hardship—Would the severance cause an overall hardship in maintaining economic activity, including impacts on agricultural infrastructure, on what might otherwise appear to be an economically viable remnant parcel?
- Current use—Is the parcel on land classified as Important Farmland not currently in agricultural use?

Agricultural Infrastructure

Interruptions of utility services or road closures would result in the conversion of Important Farmland where disruption of agricultural infrastructure would affect agricultural profitability. Analysts used GIS software to identify the number of crossings of major utilities, such as electric powerlines or irrigation canals, within 25 feet of the project footprint to assess the potential for project construction to interrupt utilities serving Important Farmland. Where project construction would disturb agricultural land, the analysis extends 100 feet from the track centerline. Analysts

³ Many severed or remnant parcels would contain small or irregularly shaped remnants. Some of these parcels would not be added to the acquisition area because the Authority has determined that some agricultural use would continue to be viable. For example, some small parcels could be consolidated with adjacent land and larger, irregularly shaped parcels could still be farmed (although with some loss of efficiency). The purpose of this analysis is to determine whether the project would convert farmland to nonagricultural use. Impacts associated with farm efficiency or property transactions (but where no farmland is lost) are social and economic impacts that are not evaluated as part of the agricultural farmland analysis.

also evaluated potential road closure impacts on Important Farmland by comparing existing access patterns to post-closure travel distances and times.

Aerial Spraying Activities

Analysts compared the height and location of aerial guideways, communications radio towers, new or changed electrical power distribution or transmission facilities, and automatic train control (ATC) and positive train control (PTC) components, including 10-foot-tall communications shelters or signal huts proposed by the project alternatives to existing structures within 25 feet of the project footprint. Where project construction would disturb agricultural land, the analysis extends 100 feet from the track centerline. The purpose for the comparison was to determine whether construction of these new structures could obstruct aircraft movement to the extent that would interfere with aerial spraying activities.

Wind Generation

Analysts evaluated potential impacts of induced wind to determine potential indirect conversion of Important Farmland. The analysis compared potential wind speeds generated by HSR operations at the HSR right-of-way (i.e., the nearest proximity to Important Farmland that would be affected by HSR-induced wind) to wind speeds that would affect common agricultural activities, such as insect pollination or aerial pesticide applications. Analysts used the following sources to gather data on HSR-induced wind speeds and ambient wind speeds occurring under existing conditions.

- The technical memorandum *Potential Impact from Induced Winds for High-Speed Trains* (CH2M HILL 2012) modeled potential wind speeds that would be generated by the HSR.
- *Induced Wind Impacts, Effects on Pollination; Blooms and Dust* (Authority 2012), quantitatively compared modeled wind speeds (CH2M HILL 2012) to wind speeds commonly known to affect agricultural activities such as insect pollination or aerial pesticide applications occurring under existing conditions, and qualitatively described potential impacts on the application of aerial pesticides (Volume 2, Appendix 3.14-D).

Williamson Act Contract Lands

The analysis of potential direct construction impacts on Important Farmland in Williamson Act contract land looked at the removal of Williamson Act land containing Important Farmland from agricultural productivity and potential for Williamson Act remainder parcels containing Important Farmland to fall below county size thresholds (Volume 2, Appendix 3.14-E).

To evaluate impacts on parcels containing Important Farmland under Williamson Act contract, the Authority obtained parcel data from Santa Clara, San Benito, and Merced County Assessors' offices and used GIS software to map existing Williamson Act parcels that would be intersected by the project footprint. The direct impact on the parcel was calculated as the portion of the parcel that would be in the project footprint. Direct impacts on Important Farmland under Williamson Act contract are already accounted for in the analysis of direct impacts on Important Farmland, and these direct impacts are not repeated in this analysis.

Analysts also evaluated the potential for indirect conversion of Important Farmland to a nonagricultural use because of remnant parcels no longer meeting the minimum acreage threshold to maintain the Williamson Act contract status and the related property tax reduction. Analysts calculated the number and size of remainder Williamson Act parcels where construction of the project would remove part of a parcel from agricultural production. Analysts reviewed the remainder parcels to determine whether they fell below the respective county's (Santa Clara, San

Benito, or Merced County) Williamson Act threshold. Remainder Williamson Act lands were evaluated in two categories:

- Parcels that continue to meet the minimum contract acreage in the county:
 - Those that are in renewal status to have their Williamson Act contract renewed.⁴
 - Those that are in nonrenewal status, meaning that the landowner or local government has initiated the nonrenewal process, ultimately resulting in the termination of the Williamson Act contract at the end of the contract term.
- Parcels that no longer meet the minimum contract acreage in the county because the resulting remainder parcel would be less than the minimum acreage required to maintain Williamson Act coverage. Minimum acreages vary by county.

The Authority has followed required procedures for notifying relevant parties of the potential impact on parcels under Williamson Act contract, which include notifying the DOC of each potentially affected property and all affected counties (DOC 2016; Authority 2020).

Williamson Act contracts are not necessary for the agricultural use of land. Because entering into a contract is voluntary and landowners may have reasons not to contract their land, not all Important Farmland is subject to a Williamson Act contract, and Williamson Act contracts may be entered into for land that is not Important Farmland. A possible change in tax status with the loss of a Williamson Act contract could modify the affected parcel's degree of profitability.

Assumptions regarding a property owner's decisions to change land use or convert from agricultural uses based on change in tax status would be speculative. Accordingly, impacts on remainder parcels under Williamson Act contracts were not assumed to result in the conversion of Important Farmland to a nonagricultural use.

3.14.4.4 Method for Evaluating Impacts under NEPA

CEQ NEPA regulations (40 C.F.R. Parts 1500–1508) provide the basis for evaluating project impacts (Section 3.1.5.4). As described in Section 1508.27 of these regulations, the criteria of context and intensity are considered together when determining whether the project would affect a resource.

- **Context**—For this analysis, the context includes regional, state, and national agricultural markets. Agricultural products from the Santa Clara Valley and the San Joaquin Valley form a large sector of the food market at all of these levels, and agriculture is a large sector of the economy in the three counties affected by the project. At the same time, urbanization is threatening agricultural farmland in these three counties, accompanied by a trend toward conversion of agricultural farmland to nonagricultural uses.
- **Intensity**—For this analysis, intensity is determined by the acreage of Important Farmland temporarily used during construction, the acreage of Important Farmland directly permanently converted to nonagricultural use during construction, the acreage of permanent remnant parcels of Important Farmland indirectly created during construction, the acreage of Important Farmland permanently indirectly affected during construction and operations, the potential for the project to interfere with implementation of Williamson Act contracts on Important Farmland, and numerical scores on the NRCS LESA Form NRCS-CPA-106.

3.14.4.5 Method for Determining Significance under CEQA

CEQA requires that an EIR identify the significant environmental impacts of a project (CEQA Guidelines § 15126). One of the primary differences between NEPA and CEQA is that CEQA requires a significance determination for each impact using a threshold-based analysis (see Section 3.1.5.4 for further information). By contrast, under NEPA, significance is used to

⁴ *Nonrenewal* refers to the method of terminating a Williamson Act or FSZ contract by filing a notice of nonrenewal. The contract is terminated 10 years from the time of notice of nonrenewal. Nonrenewal can be initiated by the landowner or the local government.

determine whether an EIS will be required; NEPA requires that an EIS is prepared when the proposed federal action (project) as a whole has the potential to “significantly affect the quality of the human environment.” Accordingly, Section 3.14.9, CEQA Significance Conclusions, summarizes the significance of the environmental impacts on agricultural lands for each project alternative. For this analysis, the project would result in a significant impact on agricultural farmland if it would:

- Convert Important Farmland to a nonagricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract in a manner that would result in conversion of Important Farmland to nonagricultural use.
- Involve other changes in the existing environment that, because of their location or nature, could result in conversion of Important Farmland to nonagricultural use.

3.14.5 Affected Environment

This section describes the affected environment for agricultural farmland resources in Santa Clara, San Benito, and Merced Counties and in the RSA by subsection. This information provides the context for the environmental analysis and evaluation of impacts.

3.14.5.1 Regional Setting

Some of California’s most productive agricultural lands, both Important Farmland and Grazing Land, are in the project vicinity. Table 3.14-2 shows the proportion of Important Farmland and Grazing Land (as a rough indicator of total agricultural land) with respect to urban land and other land uses in Santa Clara, San Benito, and Merced Counties in 2014. Figure 3.14-1 illustrates the distribution of Important Farmland and Grazing Land as well as urban land and other agricultural uses in Santa Clara, San Benito, and Merced Counties in 2014.

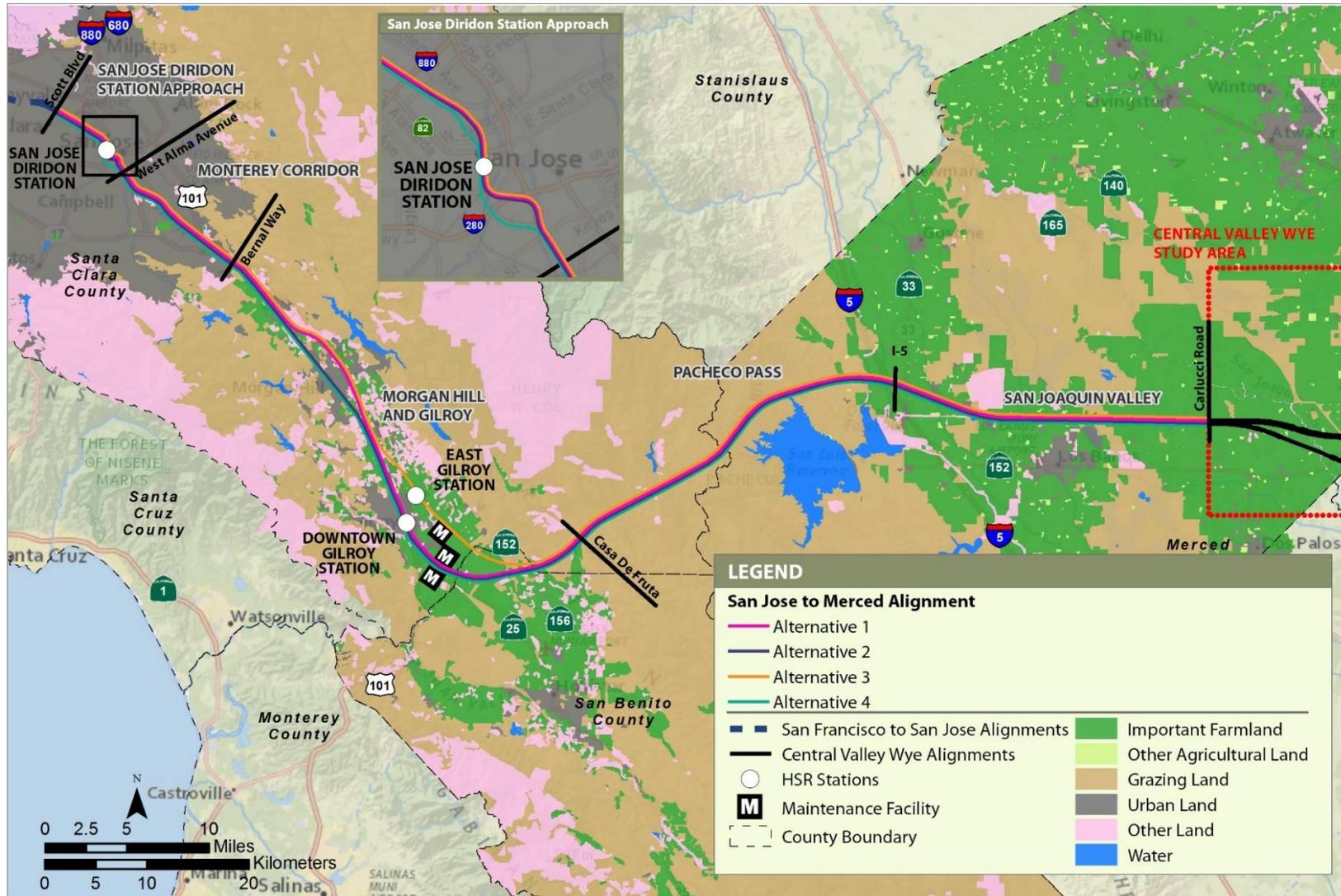
Table 3.14-2 Total Acreage and Agricultural Land Acreage in Santa Clara, San Benito, and Merced Counties (2014)

Type of Land	Santa Clara County	San Benito County	Merced County
County acreage total	835,228	889,407	1,265,634
Important Farmland	26,613	54,728	600,940
Grazing land	393,535	616,957	556,966
Agricultural land acreage total¹	420,154	671,685	1,157,906
Percentage of overall acreage in agricultural use	50.3	75.5	91.4

Sources: DOC 2014a, 2014b, 2014c

¹ The sum of FMMP Important Farmland and FMMP Grazing Land acreages was used as a rough indicator of total agricultural land acreage. FMMP = Farmland Mapping and Monitoring Program

The Santa Clara Valley extends from the southern part of San Francisco Bay to Hollister in Santa Clara County. Before it became known as Silicon Valley, it was an agricultural center producing row crops and orchard crops, as well as the largest producer of canned and dried fruit in the world (NPS 2018). While the northern part of Santa Clara Valley has been built up with high-tech industry and accompanying office parks and residential areas, southern Santa Clara Valley remains agricultural in nature (County of Santa Clara 2016). Crops include nursery crops, mushrooms, and bell peppers in the highest-ranked spots, with additional production of cherries, grapes, walnuts, garlic, other vegetable crops, field crops, and livestock and poultry (County of Santa Clara 2015). Despite a total economic production value of over \$1.6 billion annually, in the past 20 years, more than 45 percent of Santa Clara County’s farmland has been lost, and much of the remaining approximately 26,600 acres of Important Farmland are at risk of conversion to nonagricultural uses because of land development (County of Santa Clara 2018).



Note: This information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-1, Total Acreage and Agricultural Land Acreage in Santa Clara, San Benito, and Merced Counties, 2014 and Table 5-2 Important Farmland in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)
 Source: DOC 2014a

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Figure 3.14-1 Agricultural Lands in Santa Clara, San Benito, and Merced Counties

San Benito County's leading industry in 2015 was production agriculture (County of San Benito 2016), with a value of \$360.6 million. The northern portion of San Benito County consists of row crops. Between 1992 and 2008, San Benito County lost 7,300 acres of agricultural land, or 0.8 percent (County of San Benito 2015). Of this loss, almost one-half was converted to urban uses. Further, of the California central coast counties, San Benito County ranked first in the percentage of high-quality agricultural land converted to urban uses.

San Joaquin Valley extends from San Joaquin County in the north to Kern County in the south, including Merced County. San Joaquin Valley has been and continues to be an important agriculture center in California and the nation, with many of the nation's top-producing agricultural counties (American Farmland Trust 2013). The top 10 crops in Merced County in 2014 were milk, almonds, cattle and calves, chickens, sweet potatoes, tomatoes, silage, hay, eggs, and cotton (County of Merced 2015a). According to a report from the American Farmland Trust, 67 percent of all land converted to urban uses in the San Joaquin Valley between 1990 and 2008 as a result of population and development pressures was located on high-quality farmland (defined in the report as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland) (American Farmland Trust 2013).

3.14.5.2 Resource Study Area

Important Farmland

Figure 3.14-1 shows that the largest concentrated areas of Important Farmland are in southeastern Santa Clara County east and south of U.S. Highway (US) 101, and in Merced County. Figure 3.14-2a through Figure 3.14-2d illustrate Important Farmland in the RSA by subsection (except the San Jose Diridon Station Approach Subsection, which crosses developed land uses).⁵

Table 3.14-3 shows acreages of Important Farmland in Santa Clara, San Benito, and Merced Counties between 2002 and 2014. Over the 12-year period, Santa Clara County experienced a loss of approximately 15,500 acres of Important Farmland, or 37 percent, partially accounted for by urban development and an increase in Grazing Land. San Benito County lost approximately 22,400 acres of Important Farmland or 29 percent, partially accounted for by urban development. While Merced County gained approximately 14,000 acres of Important Farmland overall, or 2 percent, the amount of Prime Farmland and Farmland of Statewide Importance decreased, and the acres of Unique Farmland and Farmland of Local Importance increased. The reasons for the Farmland of Local Importance acreage increases included expansion in alfalfa acreage to serve dairies, almond orchards, and to a lesser extent vineyards and row crops, into soils that are generally less productive than Prime and Statewide Importance Farmland (DOC 2015a, 2015b, 2015c). Unique Farmland increases were related to orchards and vineyards (DOC 2015a, 2015b, 2015c). The amount of urban and built-up land in the three counties gained between 2 percent and 18 percent over this period (DOC 2014a, 2014b, 2014c).

⁵ On Figure 3.14-2a and Figure 3.14-3a, Viaduct indicates Alternatives 1 and 3, At-Grade indicates Alternative 2, and Blended-At Grade indicates Alternative 4. On Figure 3.14-2b and Figure 3.14-3b, Viaduct to Downtown Gilroy indicates Alternative 1, Embankment to Downtown Gilroy indicates Alternative 2, Viaduct to East Gilroy indicates Alternative 3, and Blended At-Grade indicates Alternative 4. On Figure 3.14-2c and Figure 3.14-3c, Tunnel indicates Alternatives 1, 2, 3, and 4. On Figure 3.14-2d and Figure 3.14-3d, Henry Mill Road indicates Alternatives 1, 2, 3, and 4.

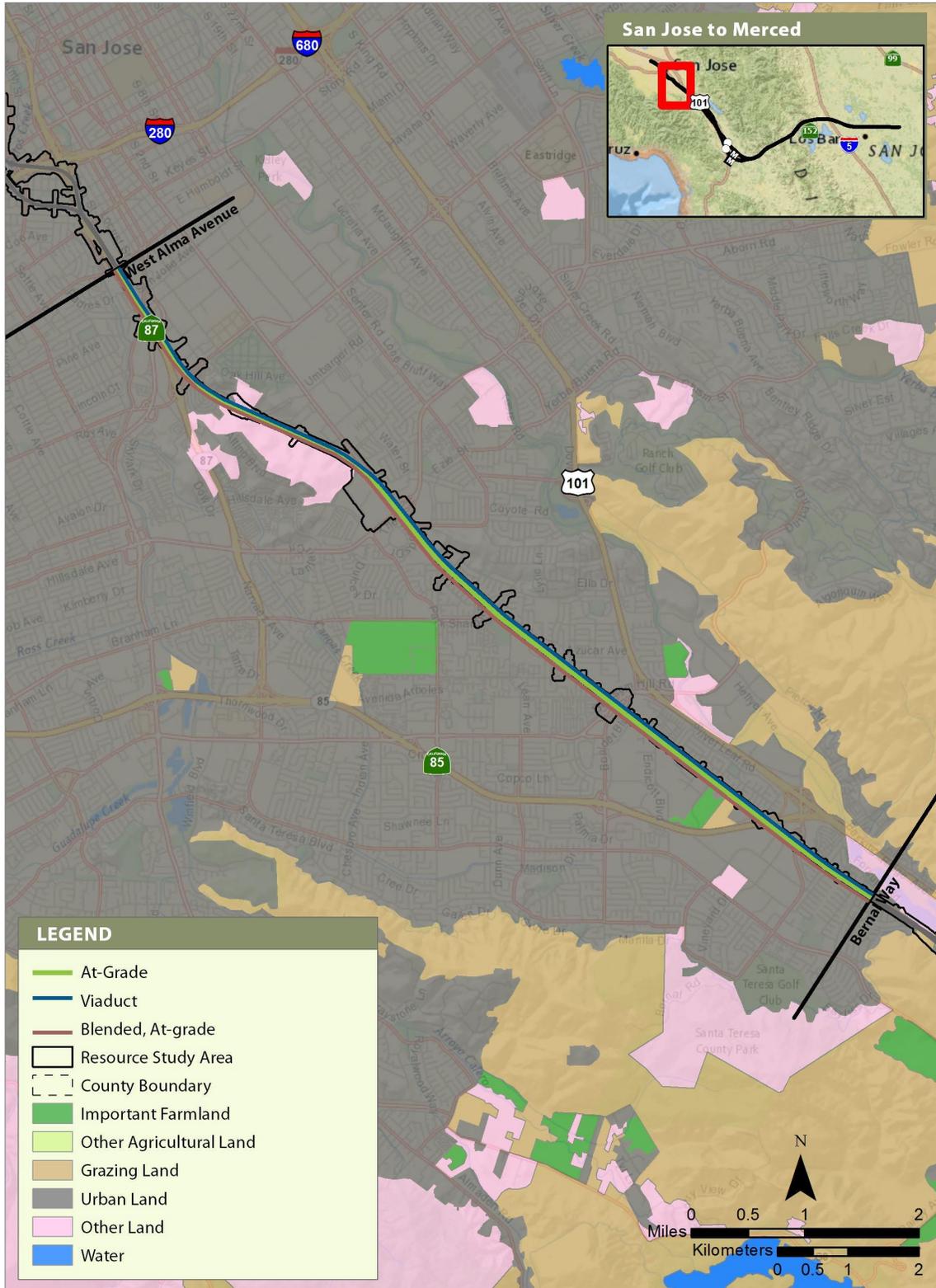
Table 3.14-3 Important Farmland in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)

Type of Land	Santa Clara County			San Benito County			Merced County		
	2002	2014	Percent Change	2002	2014	Percent Change	2002	2014	Percent Change
Prime Farmland	28,816	15,691	-46	33,617	26,981	-20	286,054	271,912	-5
Farmland of Statewide Importance	4,244	3,383	-20	8,987	6,913	-23	158,405	154,502	-3
Unique Farmland	1,404	2,440	74	1,548	2,261	46	100,749	112,301	12
Farmland of Local Importance	7,711	5,105	-34	32,948	18,573	-44	41,772	62,225	49
Important Farmland TOTAL	42,175	26,619	-37	77,094	54,728	-29	586,980	600,940	2
Grazing land	388,696	393,535	1	675,949	671,685	-1	1,165,872	1,157,906	-1
Urban and Built-Up Land	185,129	189,386	2	7,438	8,061	8	33,090	39,183	18

Over the 12-year period, Santa Clara County saw an overall 37 percent loss in Important Farmland, partially accounted for by urban development and increase in Grazing Land (DOC 2015a). San Benito County saw an overall 29 percent loss in Important Farmland, partially accounted for by urban development (DOC 2015b). Merced County saw an overall increase in Important Farmland generally because of newly irrigated field and row crops and plantings in marginal soils. For example, almond orchards have expanded into areas previously unplanted because of the high value for their crops (Food and Agriculture Organization Regional Office for Europe 1997). Notably, Prime Farmland and Farmland of Statewide Importance declined, while Unique Farmland and Farmland of Local Importance increased. The two latter categories do not have the same quality requirements for soil and water availability as Prime and Statewide Importance.

Parcel Size

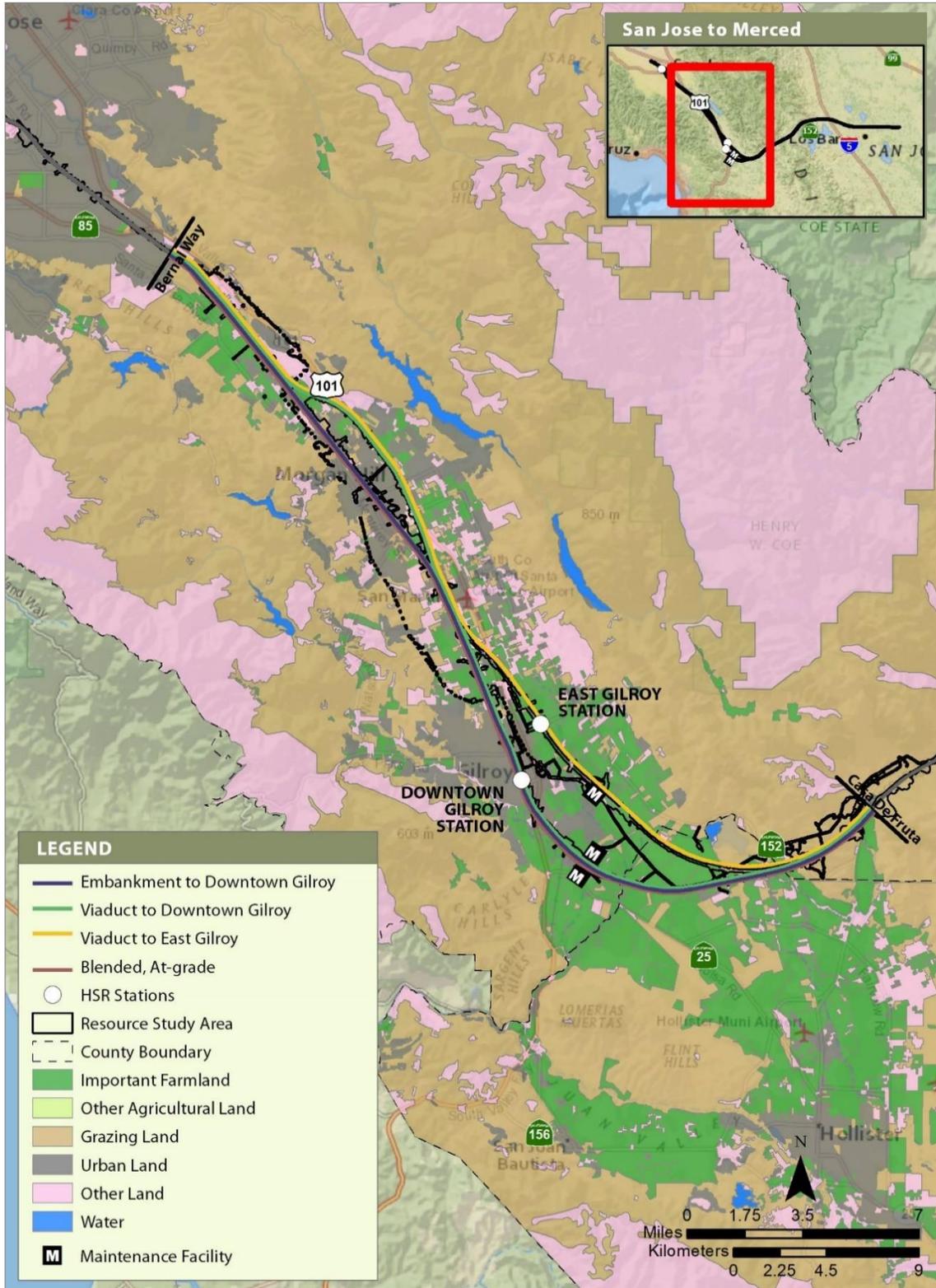
Parcels of Important Farmland in the RSA range in size from less than 1 acre of Farmland of Statewide Importance in the Morgan Hill and Gilroy Subsection to a maximum of 610 acres of Prime Farmland in the Pacheco Pass Subsection. The median size of parcels in each subsection ranges from 5 acres in the Monterey Corridor Subsection to 97 acres in the Pacheco Pass Subsection.



Note: Information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-2 Important Farmland in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)
 Source: DOC 2014a

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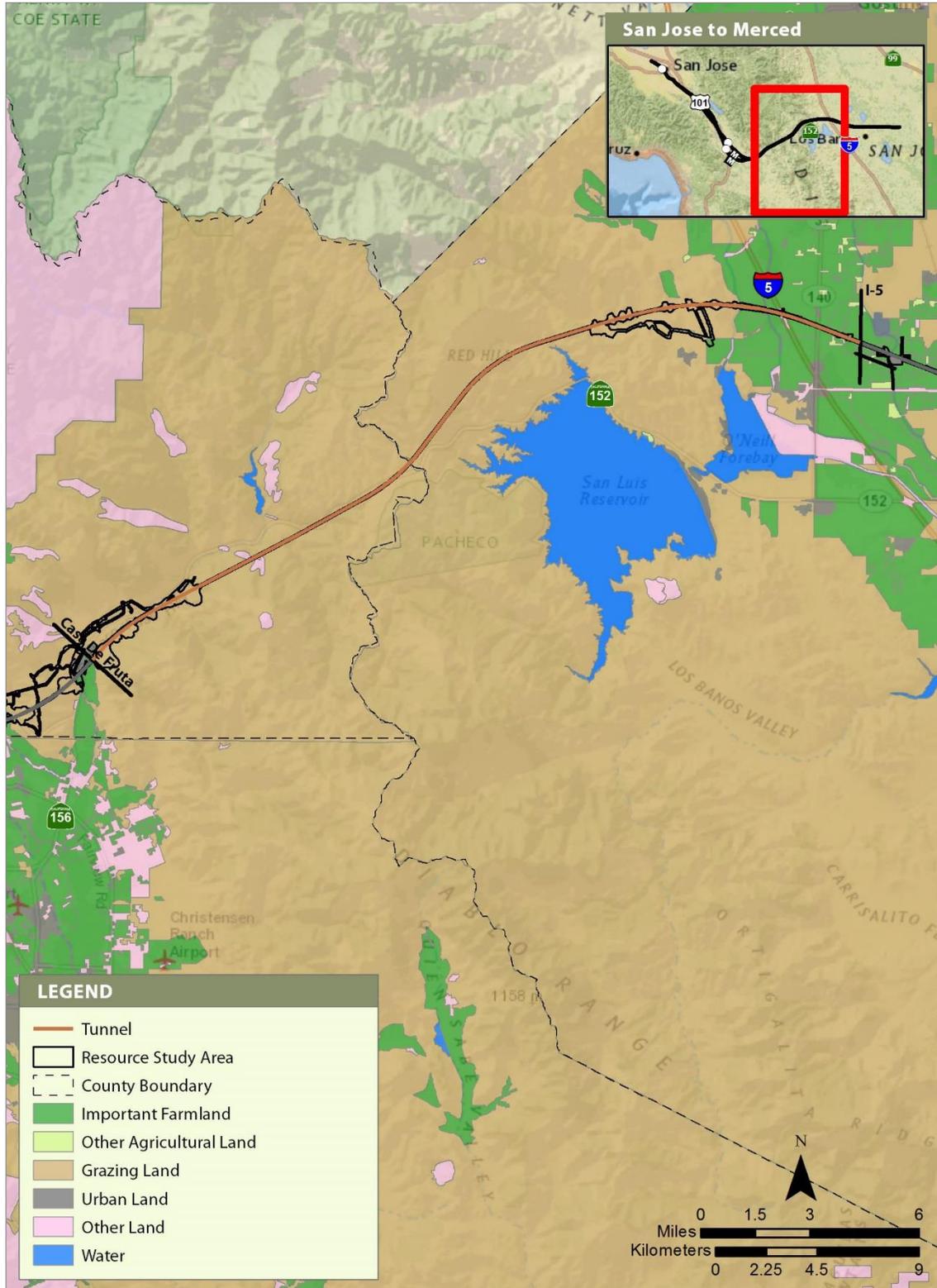
Figure 3.14-2a Important Farmland in the Monterey Corridor Subsection



Note: Information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-2 Important Farmland in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)
 Sources: DOC 2014a, 2014b

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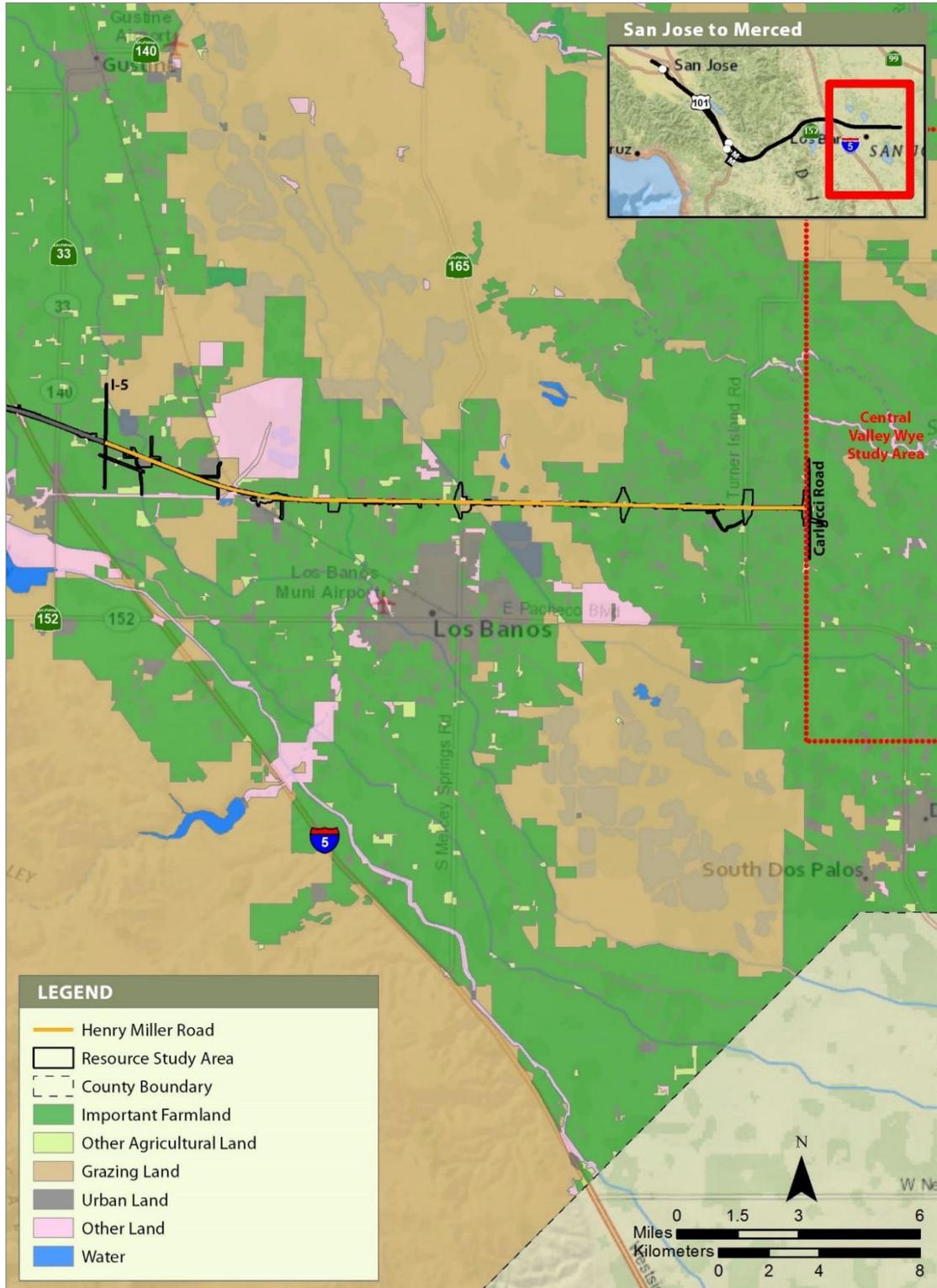
Figure 3.14-2b Important Farmland in the Morgan Hill and Gilroy Subsection



Note: Information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-2 Important Farmland in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)
Source: DOC 2014c

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Figure 3.14-2c Important Farmland in the Pacheco Pass Subsection



Note: Information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-2 Important Farmland in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)
 Source: DOC 2014c

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Figure 3.14-2d Important Farmland in the San Joaquin Valley Subsection

Agricultural Farmland Infrastructure

Agricultural infrastructure affecting Important Farmland includes utilities—energy transmission and gas lines, telecommunication systems, and irrigation infrastructure—and transportation infrastructure (University of California Agricultural Issues Center 2009).

Electric utilities—Pacific Gas and Electric (PG&E) provides electric service to most of the RSA. It generates electricity in facilities within several hundred miles of the points of use (PG&E 2014; CEC 2015). Silicon Valley Power, a municipal-owner utility, operates electrical generating equipment and provides electricity service to the City of Santa Clara (SVP 2018). Calpine operates electric generation equipment in San Jose and Gilroy (Calpine 2019a, 2019b, 2019c, 2019d).

Natural gas—PG&E is the primary natural gas service provider for the region and is responsible for maintaining the infrastructure for natural gas distribution in Santa Clara, San Benito, and Merced Counties (CEC 2018). Other high-pressure natural gas pipeline operators in Santa Clara County include the CPN Pipeline Company, which operates a 16-inch natural gas pipeline to supply natural gas to Calpine electric generating equipment in San Jose, and Silicon Valley Power, which operates a 16-inch natural gas pipeline to supply natural gas to Silicon Valley Power generating facilities in Santa Clara. High-pressure natural gas distribution lines generally follow existing transportation corridors (e.g., roads and railroad tracks).

Telecommunications—AT&T and Verizon are the primary telecommunications service providers in all subsections, with other service providers sharing the market.

Irrigation—Irrigation in the Monterey Highway, Morgan Hill and Gilroy, and much of the Pacheco Pass Subsections is provided by Santa Clara Valley Irrigation District primarily from groundwater (SCVWD 2010). Irrigation in San Benito County is provided by San Benito County Water District (SBCWD 2015). Sources of agricultural water are local groundwater, imported surface water, recycled water, and local surface water. Irrigation in the San Joaquin Valley Subsection is provided by groundwater and imported surface water from the State Water Project and Central Valley Project via the Sacramento–San Joaquin Delta through the Delta-Mendota Canal, California Aqueduct, and San Luis Canal (Private Water Law 2012). It is distributed through a network of smaller irrigation canals and conduits (DWR 2011; USBR 2017). The San Luis and Delta-Mendota Water Authority (SLDMWA), which represents 29 federal and exchange water service contractors in the western San Joaquin Valley and San Benito and Santa Clara Counties, jointly operates the Delta-Mendota Canal with the U.S. Bureau of Reclamation. SLDMWA also operates the O’Neill Pumping/Generating Plant at San Luis/O’Neill Forebay Reservoir, the San Luis Drain, and other water infrastructure facilities under a cooperative agreement with the U.S. Bureau of Reclamation (SLDMWA 2019a). The O’Neill Pumping Plant, about 12 miles west of Los Banos, lifts water from the Delta-Mendota Canal into the O’Neill Forebay adjacent to the San Luis Reservoir (SLDMWA 2019b). The San Luis Drain, located along the west side of the San Joaquin Valley, was designed to convey and dispose of agricultural water runoff (or return flows) from the San Luis service area (SLDMWA 2019c). The canal is part of the Central Valley Project, San Luis Unit, West San Joaquin Division. Eighty-seven miles of the planned 188-mile-long concrete-lined channel were completed in 1974, with a designed capacity of 300 cubic feet per second. Because of funding and environmental issues, the construction of the San Luis Drain was terminated at Kesterson Reservoir prior to completion.

Transportation—Agricultural infrastructure also includes transportation systems (University of California Agricultural Issues Center 2009). Transportation is critical to delivery of goods used in agricultural production as well as to delivery of farm products to markets (University of California Agricultural Issues Center 2009). Much of California agricultural products are fresh and are moved over long distances; in 2004, about 98 percent of all fresh fruits and vegetables in California were delivered by truck. California’s high productivity is made possible in part by the transportation system’s ability to move the produce to market. The main highway corridors for moving agricultural products by truck in the RSA are US 101 in the Monterey Highway and Morgan Hill and Gilroy Subsections, State Route (SR) 156 in the Pacheco Pass Subsection, and Interstate (I-) 5 and SR 152 in the San Joaquin Valley Subsection.

Aerial Spraying Activities

Aerial application of pesticide to row crops and orchards is performed in rural areas according to contracts with some landowners near the project footprint in all three counties (Gage 2016). Pesticide applications are made between 10 and 40 feet above the crop canopy, depending on whether the pesticide is sprayed (10 feet) or applied dry (30 to 40 feet). Pilots generally fly lengthwise along crop lines, although the presence of towers and wires for power lines, sensitive resources on the ground, or wind direction may cause the pilot to choose a different flight direction. The Federal Aviation Administration requires that towers and wires be marked and visible to pilots. Most aerial applications are done during the day; however, some happen at night.

Currently, no regulations restrict the distances agricultural aircraft must maintain from utility lines or towers (Gage 2016). Agricultural aircraft routinely fly in areas where utility lines of varying heights, such as telephone poles and electrical transmission structures, exist in or near the sprayed fields. The distance that agricultural aircraft maintain from power lines and poles depends on the cropping pattern, the field's orientation, and aircraft operator-determined safety factors.

Induced Wind

Fast-moving vehicles such as HSR trains are capable of inducing wind adjacent to the vehicle when they pass by a location. This wind that is locally increased in velocity is referred to as *induced wind*. Wind induced by an HSR train has three components: flow around the nose of the train, flow along the train, and flow in the wake of the train (CH2M HILL 2012). While exact numerical analysis is not possible because of the complexity of the phenomenon, it is well understood that the induced wind velocity is a function of the distance from the train. Specifically, the speed of induced wind can be high near the passing train, but it drops off sharply a short distance away. For example, an HSR train traveling at 220 miles per hour (mph), with an induced wind speed of approximately 39 mph at 0 feet from the train would create induced wind of only approximately 3 mph at a distance of 30 feet from the train.

Williamson Act Contract Farmlands

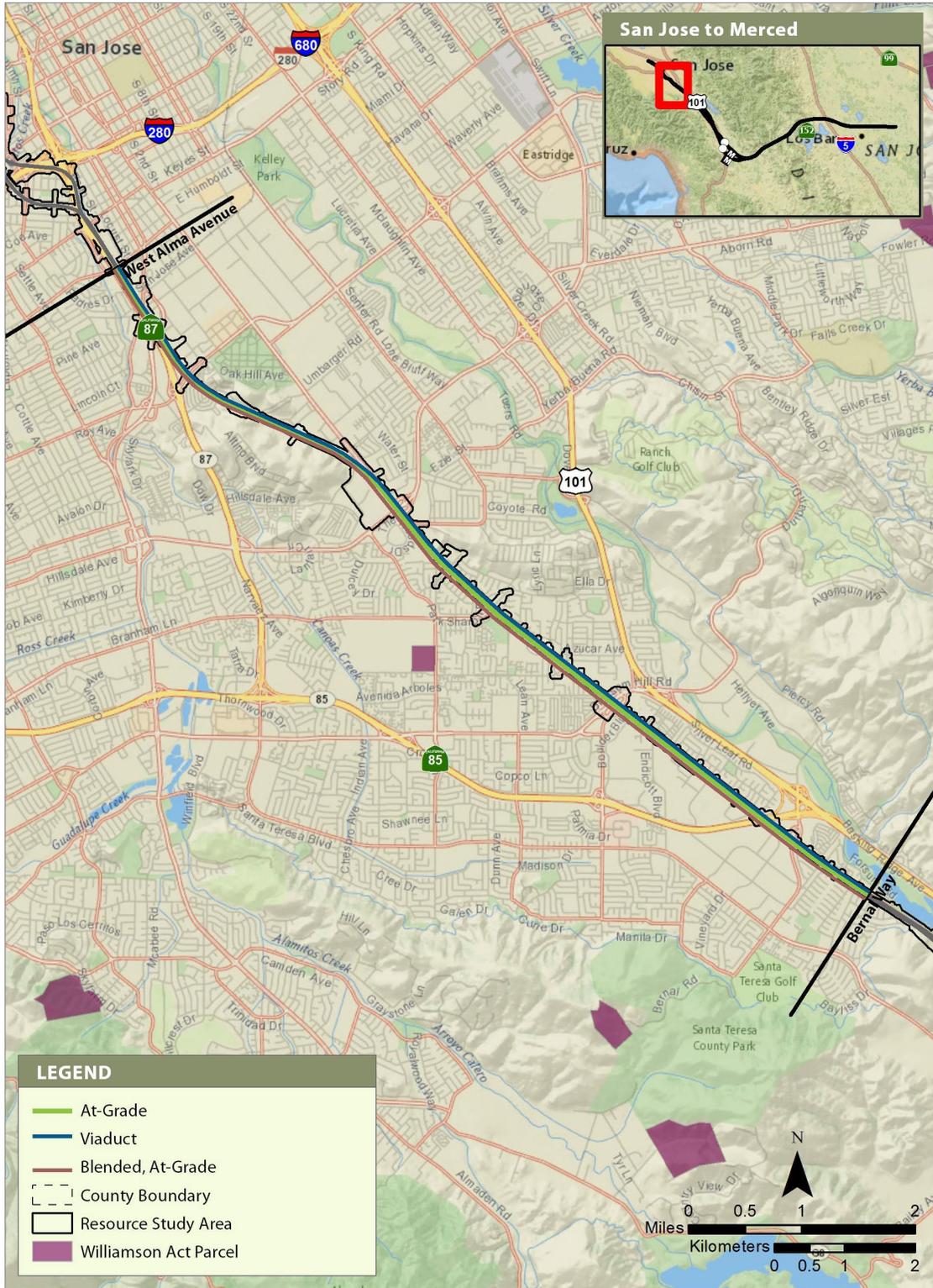
Between 2002 and 2014, Santa Clara and San Benito Counties lost farmland protected by Williamson Act contracts. Between 2002 and 2009, Merced County gained farmland protected by Williamson Act contract; Merced County did not accept new Williamson Act contracts after August 18, 2009. Table 3.14-4 shows the change in land protected under Williamson Act contracts in these counties between 2002 and 2014 (DOC 2003a, 2003b, 2003c, 2014a, 2014b, 2014c).

Table 3.14-4 Change in Farmland Protected by Williamson Act Contracts in Santa Clara, San Benito, and Merced Counties in 2002 and 2014 (acres)

Santa Clara County			San Benito County			Merced County		
2002	2014	Percent Change	2002	2014	Percent Change	2002	2014	Percent Change
330,621	305,214	(8)	582,291	579,430	0*	413,278	467,945	13

*This table rounds acreages and percentages to the nearest integer. For San Benito County, there was a very small negative change (or loss) in farmland protected by the Williamson Act in these years

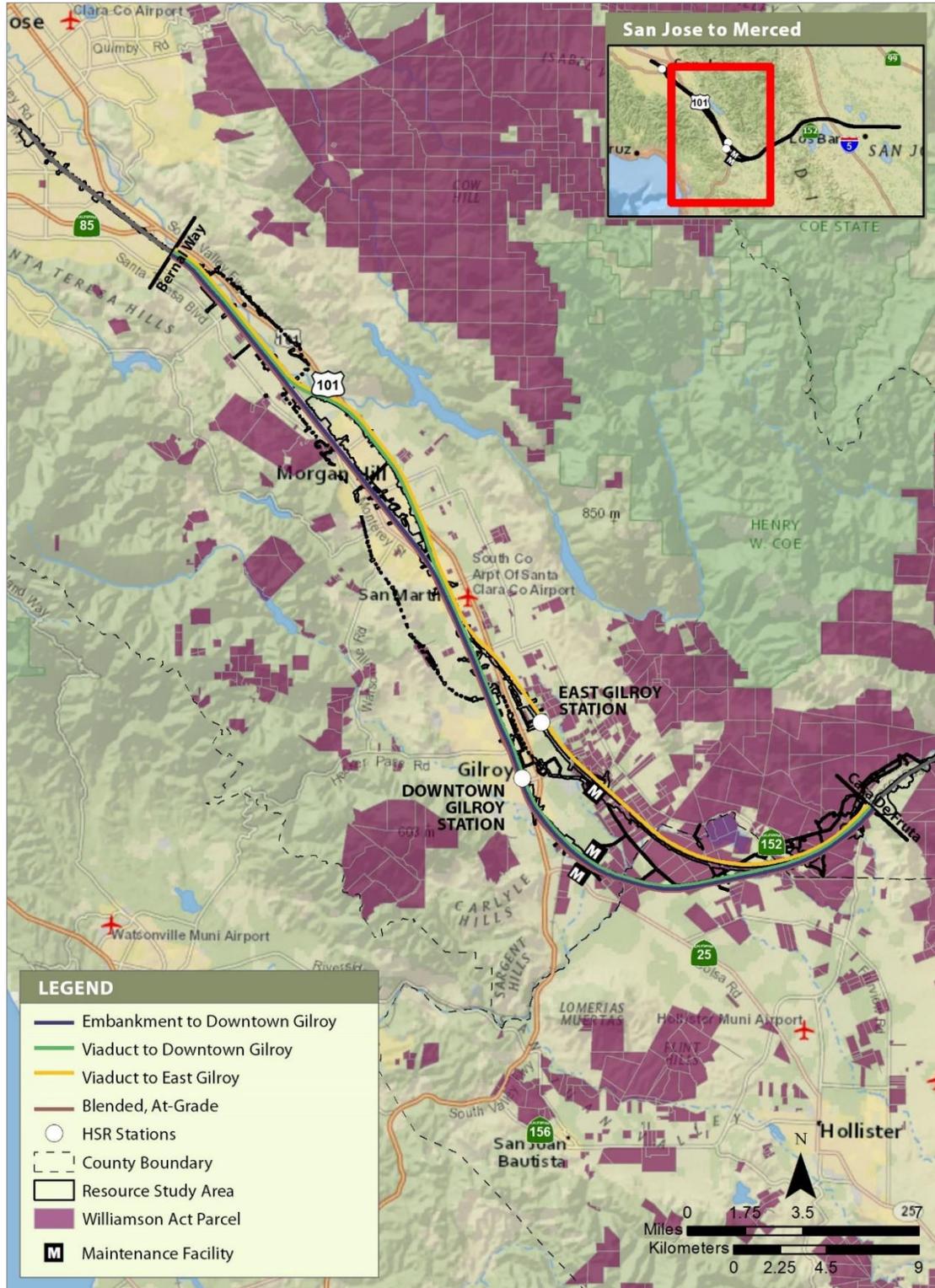
Figure 3.14-3a through Figure 3.14-3d illustrate land protected under Williamson Act within the RSA by subsection. Note that most of the land under Williamson Act in the Pacheco Pass area east of Casa de Fruta is Grazing Land and not Important Farmland. Detailed information on land under Williamson Act contract is included in Volume 2, Appendix 3.14-E.



Note: This information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-11 Farmlands Protected by Williamson Act Contract in the Resource Study Area lists total acreages of Williamson Act farmland.
 Source: County of Santa Clara 2015a

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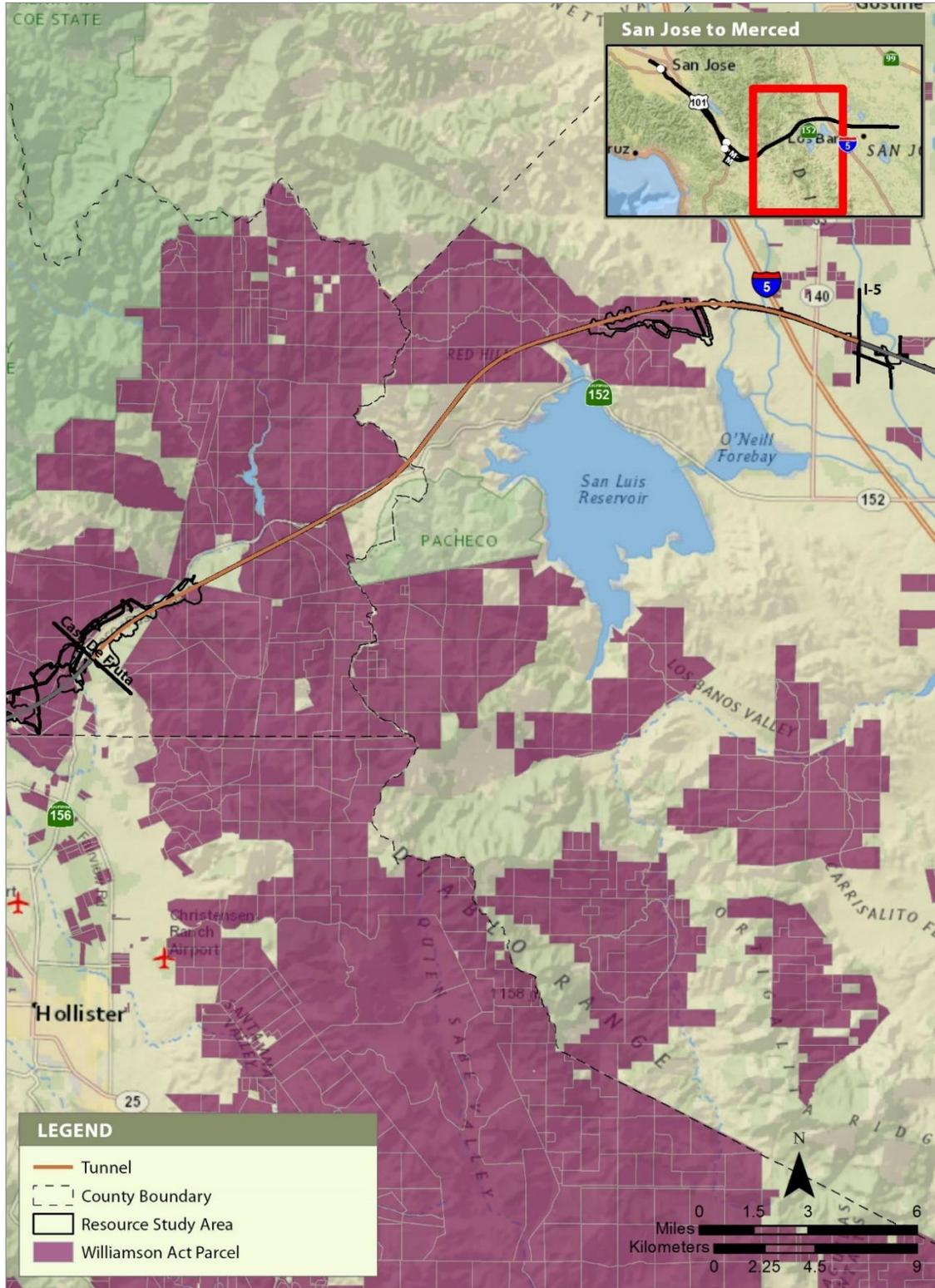
Figure 3.14-3a Farmland Protected under Williamson Act in the Monterey Corridor Subsection



Note: This information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-11 Farmlands Protected by Williamson Act Contract in the Resource Study Area lists total acreages of Williamson Act farmland.
Sources: County of Santa Clara 2015a, County of San Benito 2016

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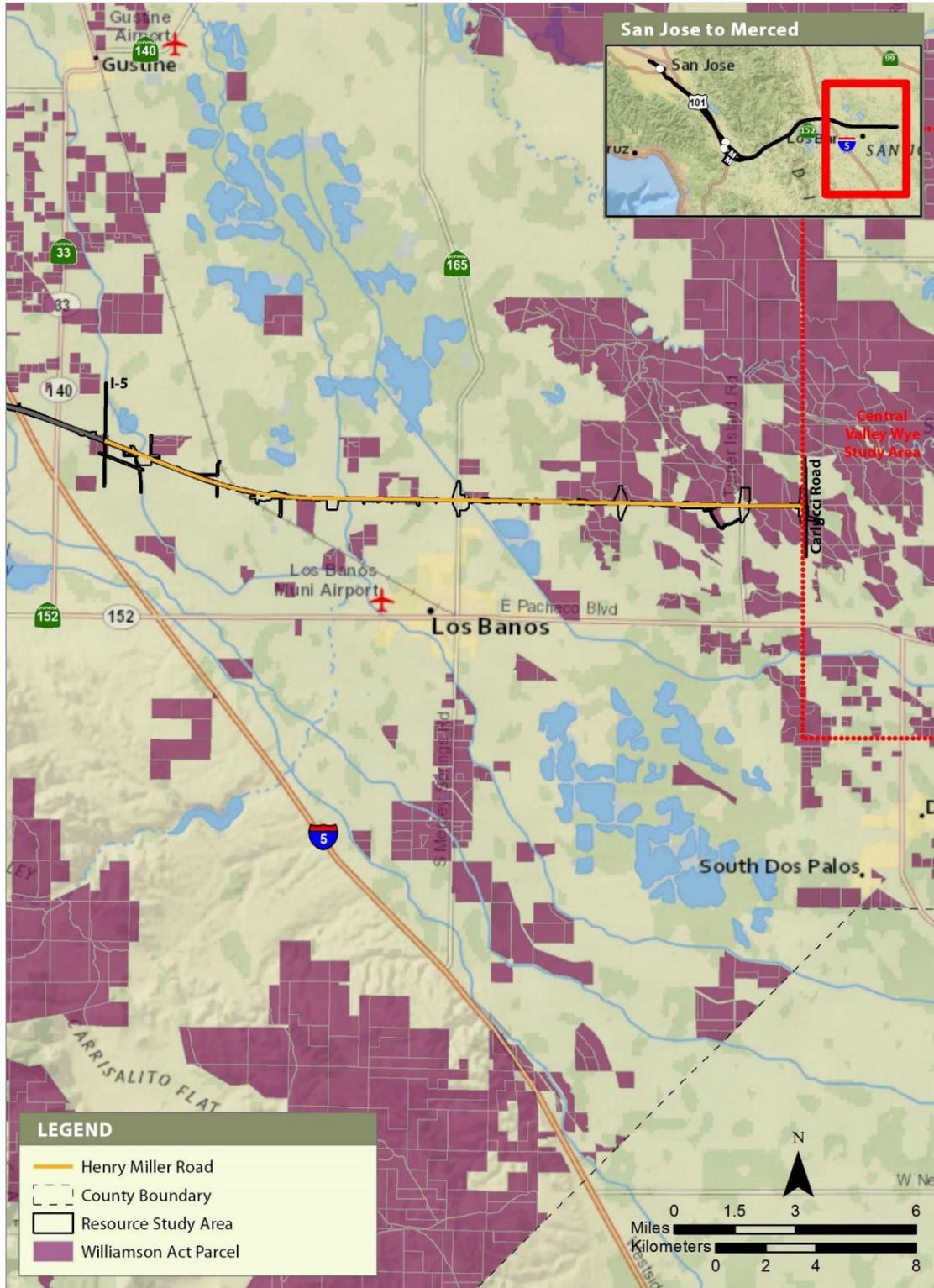
Figure 3.14-3b Farmland Protected under Williamson Act in the Morgan Hill and Gilroy Subsection



Note: This information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-11 Farmlands Protected by Williamson Act Contract in the Resource Study Area lists total acreages of Williamson Act farmland.
 Source: County of Merced 2015b

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Figure 3.14-3c Farmland Protected under Williamson Act in the Pacheco Pass Subsection



Note: This information is contained in the San Jose to Merced Agricultural Farmland Technical Report within Table 5-11 Farmlands Protected by Williamson Act Contract in the Resource Study Area lists total acreages of Williamson Act farmland.
 Source: County of Merced 2015b

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Figure 3.14-3d Farmland Protected under Williamson Act in the San Joaquin Valley Subsection

3.14.6 Environmental Consequences

3.14.6.1 Overview

This section discusses the potential direct or indirect impacts on agricultural farmland resources that could result from construction and operations of the project alternatives.

The project alternatives would include IAMFs (see Volume 2, Appendix 2-E) that would avoid or minimize impacts as a result of project construction or operation.

IAMFs differ from mitigation measures in that they are part of the project and would be included by the Authority as binding commitments in the project approval. In contrast, mitigation measures may be available to further reduce, compensate for, or offset project impacts that the analysis identifies under NEPA or concludes are significant under CEQA.

3.14.6.2 Important Farmland and Williamson Act Contract Lands

Construction and operations of the project alternatives would result in temporary and permanent direct and indirect impacts on Important Farmland. Impacts would include temporary use of Important Farmland, permanent conversion of Important Farmland to nonagricultural use, permanent creation of remnant parcels of Important Farmland, temporary and permanent disruptions of agricultural infrastructure serving Important Farmland, impacts on Important Farmland as a result of changes in aerial spraying patterns, and wind-induced impacts as a result of HSR wake at the edge of the HSR right-of-way. Additionally, construction of the project alternatives would reduce acreage of land under Williamson Act contract and would create remnant parcels of farmland currently under Williamson Act contract that may be too small, according to county policy, to continue under contract.

No Project Impacts

The population in the three-county region is expected to grow at an annual rate of 0.9 percent through 2040 (Section 3.18.5.3, Population). Development in the region to accommodate the population increase would continue under the No Project Alternative and result in associated direct and indirect impacts on agricultural farmland. The No Project Alternative considers the effects of conditions forecast by current plans for land use and transportation near the project extent, including planned improvements to the highway, aviation, conventional passenger rail, and freight rail through the 2040 planning horizon for the environmental analysis, if the project is not built. With no project, there would be more vehicle miles traveled, resulting in increased pressure to improve capacity for all transportation modes throughout the area. The Authority estimates that additional highway and airport projects (up to 4,300 highway lane miles, 115 airport gates, and four airport runways) would be planned and constructed to achieve equivalent capacity and relieve this increased pressure (Authority 2012).

Planned and other reasonably foreseeable projects anticipated to be built by 2040 include residential, commercial, industrial, recreational, and transportation development. Specifically, future development projects in Santa Clara, San Benito, and Merced Counties include implementation of general and specific plans throughout the counties, resource management plans, solar farm projects, water transfer programs, commercial development plans, quarry projects, and reclamation plans. Planned and other reasonably foreseeable projects under the No Project Alternative also include such transportation projects as reconstruction of interchanges; overcrossing construction; bridge replacements; road widenings and lane additions, including high-occupancy vehicle or express lanes; road realignment and extensions; recreational bike/pedestrian trail construction; and transit projects such as train and HSR projects and, in Santa Clara County, train electrification, bus rapid transit, and light rail. Pressure to convert Important Farmland as a result of these types of development activities is anticipated to continue in the three-county region—approximately half of Santa Clara’s remaining 27,000 acres of farmland is at immediate risk of development (County of Santa Clara 2018), and Merced County anticipates conversion as a result of a high projected population growth of 8 percent between 2010 and 2018 (CDOF 2018). These future development activities would continue the historical trend of agricultural conversion and urbanization in the region.

As described in Section 3.14.5.2, Important Farmland, past development activities have resulted in extensive conversion of agricultural farmland to nonagricultural uses. Between 2002 and 2014, approximately 23,900 acres of Important Farmland in the region were converted to other uses and approximately 11,000 acres were converted to urban uses (DOC 2003a, 2003b, 2003c, 2015a, 2015b, 2015c).⁶ By projecting this current rate of conversion, by 2040 nearly 44,000 additional acres of Important Farmland could be converted to a nonagricultural use in Santa Clara, San Benito, and Merced Counties.

In addition to the direct conversion of Important Farmland, growth and development under the No Project Alternative would result in remnant parcels of Important Farmland or of Important Farmland protected by Williamson Act contract, resulting in parcels smaller than county thresholds for such contracts. Infrastructure disruption could lead to indirect conversions of Important Farmland, and potential changes in aerial spraying patterns could result from installation of tall communications, power towers, or other tall infrastructure components. Planned development and transportation projects that would occur as part of the No Project Alternative would likely include various forms of mitigation to address Important Farmland conversion. However, given that high-quality farmland is converted at a faster rate than marginal farmland (American Farmland Trust 2013), because cities were originally generally sited near areas of agricultural productivity, no mitigation could create new high-quality agricultural land to replace agricultural land that was converted to nonagricultural use because it is a limited resource.

Project Impacts

Construction Impacts

Construction of the project would involve demolition of existing structures; clearing and grubbing existing ground surfaces; handling, storing, hauling, excavating, and placing fill; pile driving for structure foundations; and construction of aerial structures, bridges, stations, traction power and train control systems, guideway; and road modifications and utility upgrades. Construction activities are described in Chapter 2, Alternatives. Construction of electrical upgrades would involve clearing and grubbing existing ground surfaces; minor excavation and fill; construction of temporary access roads; tower placement; reconfiguration/expansion of existing substations; construction of new switching stations and new tie-lines; and reconductoring of existing power distribution or transmission lines.

Impact AG#1: Temporary Use of Important Farmland

Construction of the project would require TCEs adjacent to or near the project footprint, which would result in direct temporary impacts on Important Farmland that would last for the approximately 6-year construction duration plus 2 additional years for reconductoring.⁷

The temporary use of Important Farmland in the RSA required during construction activities would occur in the Monterey Corridor, Morgan Hill and Gilroy, Pacheco Pass, and San Joaquin Valley Subsections. This land would be leased from the landowner and temporarily removed from agricultural use for the duration of construction. In addition, reconductoring activities as part of the network upgrades would require temporary use of Important Farmland. Table 3.14-5 shows the acres of Important Farmland that would be temporarily unavailable for agricultural use under each alternative. While construction is scheduled to occur over a 6-year period plus 2 additional years for reconductoring, construction would be ongoing for approximately 1.5 years at any individual location, and restoration is scheduled to begin immediately after construction ends. TCEs would range in width from 486 feet for Alternative 1 to 568 feet for Alternative 2. Temporary use of Important Farmland associated with the project alternatives would range from 460.9 acres under

⁶ Overall change in Important Farmland acreage in the region between 2002 and 2014 was calculated by adding the overall loss of Important Farmland (Santa Clara County and San Benito County) and subtracting the overall gain (Merced County) over the period in question. Overall change in acres of urban and built-up land was calculated by adding the change in this land type in each county over the period in question.

⁷ Reconductoring work would begin in 2030. This separate 2-year construction period would have its own more limited temporary construction impacts.

Alternative 4 to 671.9 acres under Alternative 3. Tables 2a through 2d in Volume 2, Appendix 3.14-A show parcels with property-specific temporary use impacts on Important Farmland by alternative.

Table 3.14-5 Important Farmland Temporarily Used for Project Construction (acres)

Alternative	Important Farmland Used during Construction				Total
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	
Alternative 1	306.7	151.9	51.9	108.1	617.6
Alternative 2	318.0	155.6	53.7	131.3	658.6
Alternative 3	368.3	131.3	57.8	114.4	671.9
Alternative 4	188.5	143.6	47.7	81.1	460.9

In the Monterey Corridor Subsection, all alternatives except for Alternative 4 would either not affect Important Farmland or would affect only a very small area. Alternative 4 would affect 0.3 acre of Important Farmland. The primary difference in acreage lies in the Morgan Hill and Gilroy Subsection. Alternative 4 would use the least acreage because this alternative would minimize the project footprint and land use displacements or conversions by staying at grade in the Caltrain and Union Pacific Railroad (UPRR) right-of-way between Scott Boulevard in Santa Clara and Gilroy. Alternative 3 would use the most acreage because it would travel through the less urbanized areas north and east of downtown Gilroy. Except for the area around Morgan Hill where Alternative 1 would closely parallel US 101 and would not cross Important Farmland, Alternative 1 would follow the same route as Alternative 2. Alternatives 1 and 2 would pass through downtown Gilroy as well as Important Farmland north and south of Gilroy, and thus would have intermediate impacts on Important Farmland.

During construction, Alternative 1 would require eight precasting yards to produce the aerial spans for construction of the viaduct. Alternative 3 would require seven precasting yards. Although they would require a different number of precasting yards, because of their sizes, the affected acreage would be approximately the same for the two alternatives. Alternatives 2 and 4 would require five precasting yards, the same acreage for each.

All four project alternatives would follow the same corridor through the Pacheco Pass Subsection in southern Santa Clara County and San Joaquin Valley Subsection in Merced County, so all alternatives would temporarily use the same area of Important Farmland. In the Pacheco Pass Subsection, some construction impacts resulting from temporary use of Important Farmland would occur in the west before the corridor enters the tunnel. Where the tunnel surfaces to the east, grazing land predominates, but further east as the land flattens out, before the San Joaquin Valley Subsection begins, Important Farmland would be temporarily used during construction. Because Important Farmland occupies most of the length of the San Joaquin Valley Subsection, constructing the at-grade and embankment alignment through this subsection would temporarily use these lands for most of its length.

Although the project alternatives would temporarily use Important Farmland, the land would be restored following the cessation of construction activities under all alternatives and would not be permanently converted to nonagricultural use. Affected Important Farmland used for construction at temporary construction areas would be restored after construction to as close to the pre-construction condition as possible, with the goal that parcels remain available for long-term agricultural use (AG-IAMF#1). Prior to construction, the top 18 inches of soil would be removed and stockpiled on site for replacement during restoration activities, preserving essential soil productivity. Pre-construction conditions of temporary staging areas would be documented through time-stamped photography. As a result, Important Farmland temporarily used for

construction purposes would be restored to agricultural use and would not be subject to permanent conversion to nonagricultural use under any of the project alternatives. Disruption of agricultural use would last only from the time land is leased from the landowner until restoration is complete. This reduction would not have regional repercussions because the disruption would be short term and limited in geographic scope. Further, the Authority would notify agricultural property owners or leaseholders immediately adjacent to the disturbance limits for the project footprint at least 3 months but no more than 12 months prior to the start of construction activity (AG-IAMF#4).

CEQA Conclusion

The impact under CEQA would be less than significant for all four alternatives because the temporary use of Important Farmland during construction would not permanently convert Important Farmland to nonagricultural use. Project features include a commitment to restore Important Farmland following the cessation of construction activities to as close to the pre-construction condition as possible, with the goal that parcels remain available for long-term agricultural use (AG-IAMF#1). Therefore, CEQA does not require mitigation.

Impact AG#2: Permanent Conversion of Important Farmland to Nonagricultural Use

Direct permanent conversion of Important Farmland to nonagricultural use would occur where the project footprint of an alternative overlaps Important Farmland. The Authority would purchase and use the land in the project footprint for the HSR right-of-way, access easement, stations, and maintenance facilities.

In the Morgan Hill and Gilroy, Pacheco Pass, and San Joaquin Valley Subsections, construction of the HSR system, including acquisition of land for the construction of the HSR right-of-way, access easement, stations, and maintenance facilities, would require the long-term use of Important Farmland, resulting in direct permanent impacts through the conversion of Important Farmland to a nonagricultural use. Figure 3.14-2a through Figure 3.14-2d illustrate Important Farmland in the RSA by subsection.

Table 3.14-6 shows the acreage of Important Farmland that would be permanently converted to nonagricultural use by alternative. For all project alternatives, no permanent conversion of Important Farmland would occur in the San Joaquin Diridon Station Approach or Monterey Corridor Subsections. Permanent conversion of Important Farmland to nonagricultural use associated with the project alternatives would be the greatest under Alternative 3 (1,192.5 acres) and the least under Alternative 4 (1,032.7 acres). Once converted, this land would be permanently removed from agricultural use. Tables 1a through 1d in Volume 2, Appendix 3.14-A show property-specific direct permanent conversion impacts of Important Farmland by alternative.⁸

⁸ Total acreages presented here do not exactly match total acreages based on parcel analysis presented in Appendix 3.14-A. This is because Appendix 3.14-A presents county parcel data which includes some road gaps and parcel overlaps at county boundaries between parcels in the detailed parcel-level analysis, whereas the acreages presented in this technical report analysis are based on continuous data with no gaps for roads or overlaps at county boundaries. While the data sets do not match, they both are accurate calculations based on the underlying data, and corresponding calculations from each dataset are accurate.

Table 3.14-6 Important Farmland Permanently Converted to Nonagricultural Use in the Project Footprint (acres)

Alternative	Important Farmland				Total
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	
Alternative 1	552.3	236.0	89.9	157.34	1,035.5
Alternative 2	644.6	257.1	93.5	186.2	1,181.3
Alternative 3	653.8	269.8	84.6	184.4	1,192.5
Alternative 4	540.5	250.4	90.7	151.1	1,032.6

Only in the Morgan Hill and Gilroy Subsection would the project alternatives differ in the acreage of permanent conversion of agricultural land. Alternative 4 would permanently convert the smallest area of Important Farmland because this alternative would minimize the land use displacement and conversion by staying predominantly within the existing transportation corridor right-of-way. Alternative 3 would permanently convert the largest total area of Important Farmland because it would pass through the eastern portion of Santa Clara County, be built largely on Important Farmland, and bypass the urban area of Gilroy. Alternatives 1, 2, and 4 would pass through downtown Gilroy and would thus avoid some Important Farmland. However, Alternative 2 would require relocation of the UPRR tracks, resulting in impacts on Important Farmland. Alternative 1 would be built on viaduct in the median of Monterey Road for a portion of its length and would pass through downtown Gilroy, thus avoiding some of the Important Farmland in the subsection.

All four project alternatives would be the same through the Pacheco Pass and San Joaquin Valley Subsections and would permanently convert the same area of Important Farmland to nonagricultural use. In the Pacheco Pass Subsection in Santa Clara County, permanent conversion of Important Farmland would take place between Tunnel 1 and Tunnel 2 in the western portion of the subsection. Where the alignment surfaces east of Tunnel 2, grazing land predominates until the slope of the land flattens out, where Important Farmland becomes predominant. In the San Joaquin Valley Subsection in Merced County, permanent conversion of Important Farmland would affect the entire alignment because it would pass through Important Farmland for most of its length.

No permanent conversion of Important Farmland would occur because of reconductoring of electrical lines.

Table 3.14-7 shows the farmland conversion impact ratings provided by the NRCS for each project alternative by county. Each project alternative in each county has a LESA score below 160, which is below the threshold over which the FPPA requires additional evaluation. Because the project alternatives did not score more than 160 points, NRCS does not recommend a preferred alternative based on the LESA score.

Table 3.14-7 Natural Resources Conservation Service Land Evaluation and Site Assessment: Farmland Conversion Impact Rating Scores

Alternative	NRCS LESA ¹ Impact Rating Score		
	Santa Clara County	San Benito County	Merced County
Alternative 1	126	118	137
Alternative 2	125	119	137
Alternative 3	130	119	137
Alternative 4	107	118	137

¹ LESA provides a basis for assessment for the portion of each alternative alignment in each county and does not provide an overall assessment for the complete alternative. Each county's score is calculated independently because the score rests in part on a soil assessment, and soil assessments vary between counties (Rolfes 2019). In addition, the scores are not additive given that they are calculated as a percentage of the alternative in a county that has a particular characteristic (e.g., has a boundary with nonurban land uses). As a result, the NRCS does not have either a threshold or a process for analyzing the aggregate impact of each alternative across the multiple counties.

LESA = Land Evaluation and Site Assessment

NRCS = Natural Resources Conservation Service

CEQA Conclusion

The impact under CEQA would be significant for all four alternatives because construction of the project would result in the permanent direct conversion of Important Farmland to nonagricultural use. Mitigation measures to address this impact are included in Section 3.14.9, CEQA Significance Conclusions. Section 3.14.7, Mitigation Measures, describes these measures in detail.

Impact AG#3: Permanent Creation of Remnant Parcels of Important Farmland

In the RSA, the project alternatives could result in the indirect creation of remnant parcels of Important Farmland in and adjacent to the TCE because of severance by the project. Some parcels could be severed from a larger parcel because the guideway alignment would bisect the parcel, and some parcels could be severed because roadway access would be restricted or eliminated. Some remnant parcels would remain in agricultural use because of adjacency to other farmland with access, sufficient size, or farmable shape. However, remnant parcels of 20 acres or less have the potential to become unfarmable because of lack of access, size, shape, location, or other constraint. These are referred to as nonviable remnant parcels and would result in conversion to nonagricultural use. Reconductoring of the electrical line would not result in the creation of remnant parcels from severance.

Table 3.14-8 shows the number of nonviable remnant parcels of 20 acres or less that would be converted to nonagricultural use from parcel severance and the total Important Farmland in the nonviable remnant parcels by alternative. No remnant parcels would be converted to nonagricultural use in the San Jose Diridon Approach Subsection for any of the four alternatives. Permanent conversion of Important Farmland to nonagricultural use resulting in the creation of remnant parcels would be the greatest under Alternative 3 (252.8 acres) and the least under Alternative 4 (147.0 acres). See Volume 2, Appendix 3.14-C for detailed information on Important Farmland converted to nonagricultural use from the creation of remnant parcels, including total acreage of Important Farmland in each remnant parcel.

Table 3.14-8 Number of Nonviable Remnant Parcels and Acreage of Important Farmland in Nonviable Remnant Parcels Converted to Nonagricultural Use

Alternative	Number of Nonviable Remnant Parcels	Total Important Farmland (acres) Converted to Nonagricultural Use
Alternative 1	139	162.9
Alternative 2	250	244.3
Alternative 3	195	252.8
Alternative 4	144	147.0

The differences among the acreages affected by the project alternatives would occur in the Monterey Corridor and Morgan Hill and Gilroy Subsection. The acreages affected would be the same in the Pacheco Pass and San Joaquin Valley Subsections because the four alternatives would follow the same corridor. The differences among the acreages in the Morgan Hill and Gilroy Subsection relate to the shape and size of the remnant parcels under each alternative and the fact that Alternative 3 would traverse large swaths of Important Farmland.

The Farmland Consolidation Program (AG-IAMF#3), which is administered by the Authority, would provide for continued agricultural use on the maximum feasible amount of remnant parcels by facilitating the sale of remnant parcels to neighboring landowners for consolidation with adjacent farmland properties. Remnant parcels not considered viable to continue in agricultural use are considered converted because of parcel severance. Remnant parcels that are considered viable candidates for consolidation with adjoining agricultural properties through the Farmland Consolidation Program are anticipated to remain in agricultural use. With implementation of the IAMF, conversion of Important Farmland to nonagricultural use would be minimized; however, permanent conversion because of remnant parcel creation would still result under all four alternatives.

CEQA Conclusion

The impact under CEQA would be significant for all four alternatives because construction of the project would create remnant parcels that would result in the permanent conversion of Important Farmland to nonagricultural use. Project features, specifically the Farmland Consolidation Program (AG-IAMF#3), would minimize the permanent conversion of Important Farmland resulting from creation of remnant parcels by facilitating the sale of remnant parcels to neighboring landowners for consolidation with adjacent farmland properties. Remnant farmland parcels that are consolidated with adjacent farmland parcels are anticipated to remain in agricultural use. Some remnant parcels, however, would not be viable for continued agricultural use, so the program would minimize but not avoid the permanent conversion of Important Farmland to nonagricultural use. Mitigation measures to address this impact are identified in Section 3.14.9, CEQA Significance Conclusions. Section 3.14.7, Mitigation Measures, describes these measures in detail.

Impact AG#4: Temporary Disruption of Agricultural Infrastructure Serving Important Farmland

Utilities and Irrigation Infrastructure

Agricultural operations depend on utility systems and other infrastructure such as irrigation infrastructure (e.g., ditches, drains, pipelines, and wells) and agricultural water drainage systems such as the San Luis Drain. Construction in the right-of-way, including clearing, grading and excavation, demolition of structures, and operations of cranes and other construction equipment, would require the temporary shutdown of aboveground, below-ground, or overhead electrical transmission lines; natural gas transmission pipeline facilities; petroleum product conveyance facilities; and irrigation infrastructure. Shutdowns could interrupt utility services to agricultural customers, among others. Construction of the project could disrupt agricultural operations

through temporary disruption of utilities, power supply infrastructure, and irrigation and drainage infrastructure (Table 3.14-9).

Table 3.14-9 Major Utility Crossings¹

Utility	Crossings			
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Electrical lines ²	215	231	210	207
Canals/pipelines	20	20	17	18

¹ Multiple crossings of an individual utility are counted only once.

² Overhead electrical lines greater than or equal to 60 kV and underground electrical lines greater than or equal to 300 kV
kV = kilovolt

Coordination with service providers would occur to minimize or avoid temporary disruption of utilities or irrigation infrastructure that would affect agricultural operations (PUE-IAMF#4). Temporary disruption of irrigation infrastructure would be avoided by installing new facilities before disconnecting existing facilities (PUE-IAMF#2). Furthermore, the public would be notified of service disruptions in advance through a coordinated outreach campaign (PUE-IAMF#3). These measures would avoid or minimize impacts on agricultural operations from utility disruptions and disruptions to irrigation facilities under any of the project alternatives.

In addition, to provide agricultural property owners or leaseholders sufficient lead time to make changes to their operations in response to project construction, the Authority would provide written notification of pending construction to agricultural property owners or leaseholders immediately adjacent to the area of project footprint disturbance (AG-IAMF#4). The notification would indicate the intent to begin construction and would include an estimated date for the start of construction. The notice would be provided at least 3 months but no more than 12 months prior to the start of construction activity. With adequate lead time, property owners or leaseholders could prepare functionally and economically for the temporary change in circumstances. This measure would allow agricultural property owners and leaseholders to make changes to their operations in anticipation of and in response to project construction under any of the alternatives.

While these measures would be effective in avoiding or minimizing effects on agricultural operations from utility and irrigation facility disruptions, they would be ineffective if drainage facilities were disrupted, which could result in impacts on agricultural operations. These impacts could include increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems. No IAMFs are available to minimize effects on agricultural drainage facilities.

Alternative 2 would have the greatest impact on utilities, requiring temporary interruption of 231 electrical lines. Alternative 4 would have the least impact, requiring temporary interruption of 207 electrical lines. All four alternatives would have approximately the same impact on canals and pipelines, with Alternatives 1 and 2 having slightly greater impact, interrupting 20 canals or pipelines rather than 18 for Alternative 4 and 17 for Alternative 3. Impacts from disruption of utility service and irrigation facilities would be minimized through IAMFs and design features, and the conversion of Important Farmland to nonagricultural use as a result of utility and irrigation facility disruptions is not expected to occur under any of the alternatives. However, disruption of drainage facilities could occur under the alternatives and would result in indirect conversion of Important Farmland to nonagricultural use.

Transportation Infrastructure

Construction in the right-of-way would include clearing, grading and excavation, demolition of structures, and operations of cranes and other construction equipment, all of which could require temporary road closures. Project construction would require TCEs and temporary closures of parking areas or roadway travel lanes, and construction of overcrossings and interchanges. Construction activities would include demolition and clearance of structures within the rights-of-way, construction of grade separations that would require temporary relocations of existing roads

or construction of new temporary roads, construction of a maintenance of way facility and a maintenance of way siding, and placement of railbeds and HSR track and systems. These road closures and temporary road relocations could result in delays and limited access to agricultural infrastructure, including limitations to existing livestock and equipment crossings. In addition, reconductoring of the electrical line could occasionally necessitate short-term road closures, which could also result in delays and limited access to agricultural infrastructure.

Temporary road closures and detours could cause increased response times to emergencies such as canal breaches, causing damage to Important Farmland and potentially resulting in indirect conversion of Important Farmland to nonagricultural use. While it is likely that there would be differences among the project alternatives in number of temporary road closures and detours, it is unknown at the present stage of project design what the differences would be.

For all project alternatives, impacts of temporary roadway closures, including those associated with network upgrades, would be minimized by TR-IAMF#2, which would require detours, temporary signage, advanced notification of temporary road closures, and other measures designed to maintain traffic flow and avoid delays. These measures would provide for continued access to irrigation facilities during construction and would avoid disruption to irrigation canal maintenance activities. Road closures in agricultural areas would be coordinated with local and state agriculture and trucking agencies to avoid impacts, particularly from June through September (peak harvest season in the RSA). Any road closures that must occur on county roads typically would not result in detours that would exceed 1 to 2 miles and would be coordinated with the local jurisdiction (TR-IAMF#2). Alternatively, guard structures may be installed at road crossings instead of road closures. Although detours could still result in increased travel times, advanced notification would be required prior to temporary road closures, which would allow agricultural operators time to plan for these closures and would avoid the potential for crop damage.

In addition, the project would provide temporary livestock and equipment crossings to minimize delays and limited access to agricultural infrastructure caused by temporary road closures (AG-IAMF#5). Prior to the start of any construction activity adjacent to any farmland, the Authority would coordinate with agricultural property owners or leaseholders to provide temporary livestock and equipment crossings to minimize impacts on livestock movement, routine operations, and normal business activities during project construction. With temporary livestock and equipment crossings, access to farm parcels would be maintained. These measures would avoid or minimize impacts on agricultural operations from temporary road closures, and permanent conversion of Important Farmland to a nonagricultural use is not expected to occur under any of the alternatives.

To provide agricultural property owners or leaseholders sufficient lead time to make any changes to their operations in response to project construction, the Authority would provide written notification to agricultural property owners or leaseholders immediately adjacent to the area of disturbance (AG-IAMF#4). The notification would indicate the intent to begin construction and would include an estimated date for the start of construction. The notice would be provided at least 3 months but no more than 12 months prior to the start of construction activity. With adequate lead time, property owners or leaseholders would be able to prepare functionally and economically for the temporary change in circumstances. This measure would allow agricultural property owners and leaseholders to make changes to their operations in anticipation of and in response to project construction, and permanent conversion of Important Farmland as a result of disruptions to transportation infrastructure would not occur under any of the alternatives.

These impacts are discussed in related sections in this Draft EIR/EIS. Impacts on utilities, including electrical infrastructure and irrigation canals, are discussed in Section 3.6, under Impact PUE#1 and Impact PUE#5. Impacts on transportation infrastructure, including major and rural roadway closures, are discussed in Section 3.2, under Impact TR#1 and Impact TR#2.

CEQA Conclusion

The impact under CEQA would be less than significant with respect to disruption of utilities and irrigation and road infrastructure, but significant with respect to disruption of agricultural drainage infrastructure for all four project alternatives.

Project features would avoid or minimize disruptions of utilities and irrigation infrastructure resulting from construction of the project. New utilities, power supply infrastructure, and irrigation infrastructure would be installed before existing facilities are disconnected, and construction activities would be coordinated with service providers, minimizing service interruptions that would disrupt agricultural operations (PUE-IAMF#2, PUE-IAMF#4 and TR-IAMF#2). The Authority would provide written notification prior to construction to agricultural property owners or leaseholders immediately adjacent to the area of disturbance, so property owners or leaseholders would be able to prepare functionally and economically for the temporary change in circumstances (AG-IAMF#4). Further, temporary livestock and equipment crossings and a limit on detour lengths to 1 to 2 miles at most would minimize delays and disruption to agricultural infrastructure access caused by temporary road closures (AG-IAMF#5).

However, the project could result in temporary disruption of agricultural drainage infrastructure. Impacts could include increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems, which would in turn result in permanent conversion of Important Farmland to nonagricultural uses. Therefore, the impact under CEQA for all four alternatives is significant. Mitigation measures to address this impact are identified in Section 3.14.9, CEQA Significance Conclusions. Section 3.14.7, Mitigation Measures, describes these measures in detail.

Impact AG#5: Permanent Disruption of Agricultural Infrastructure Serving Important Farmland

Construction of the project could permanently relocate some irrigation facilities, relocate agricultural drainage facilities, and close some roads. Relocated irrigation and drainage facilities would need to have new access built at the same time the facilities are made operational in order not to disrupt agricultural operations. Road closures could limit or eliminate access to fields as well as irrigation canals or ditches used for irrigation needs and maintenance activities, and disrupting basic agricultural activities, such as managing soil, sowing, planting, and harvesting. Road closures could also eliminate access to irrigation ditches. If road access and travel times to existing or relocated irrigation facilities is not maintained or not communicated to users, major canal breaches could result in damage to agricultural lands (crops). The extent of the damage would depend on the duration of the disruption and the crop type. Damage to permanent crops⁹ could likely result in a longer delay in the return to full productivity than would the flooding of seasonal row crops.

The loss of access to irrigation would result in the indirect conversion of Important Farmland because of potential crop damage and a corresponding decrease in agricultural productivity. Road closures because of construction activities could limit equipment access to fields, disrupting basic agricultural activities, such as managing soil, sowing, planting, and harvesting. Road closures could also eliminate access to irrigation ditches.

Where irrigation facilities need to be relocated, except for at an identified site near Casa de Fruta (discussed below in this paragraph), new irrigation facilities would be installed and operational before existing facilities would be disconnected (PUE-IAMF#2). This would allow agriculture operators to have a reliable source of irrigation water, reducing risk of indirect conversion of Important Farmland to nonagricultural use. At the site near Casa de Fruta (from Station 3148+60 to Station 3154) the project design would involve embankment, which would interfere with operation of the parcel-specific irrigation infrastructure. IAMF PUE-IAMF#2 would be ineffective at this site because the embankment design would permanently interfere with multiple irrigation

⁹The term *permanent crops* refers to crops grown for many seasons, such as grape vines, fruit, nut, or olive orchards. It does not include tree farms.

lines. As a result, the alternatives would result in conversion of Important Farmland to nonagricultural use at the site near Casa de Fruta.

Further, relocation of major agricultural drainage facilities could affect Important Farmland. Loss of access to major agricultural drainage infrastructure could result in increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems. Such damage would result in conversion of agricultural land to nonagricultural uses. However, no IAMFs exist to minimize effects of the project on Important Farmland as a result of disruption of agricultural drainage. If agricultural drainage is disrupted permanently, indirect conversion of Important Farmland to nonagricultural use would result.

All four project alternatives would result in the permanent closure of some public and private roadways on agricultural farmland, severing Important Farmland. Table 3.14-10 shows the number of road closures on agricultural land by alternative. Only the Morgan Hill and Gilroy Subsection would require differing numbers of road closures: Alternative 1 would require three road closures in this subsection, Alternative 2 would require nine road closures, Alternative 3 would require five road closures, and Alternative 4 would require five road closures.

Alternative 1 would have the least impact with 10 road closures and would require the fewest road closures because it would be built on viaduct north of Gilroy. Alternative 2 would have the greatest impact with 16 road closures because it would be built on the ground as an embankment north of Gilroy, which would require closure of Blanchard Road, Emado Road, Fox Court, Fox Lane, Tilton Avenue, Caputo Drive, Lincoln Avenue, Lena Avenue, and Denio Avenue. However, with respect to farm road modifications, Alternatives 3 and 4 would each have 12 road closures. See Chapter 2 for more details on road closures.

Table 3.14-10 Permanent Road Closures on Agricultural Farmland

Permanent Road Closures			
Alternative 1	Alternative 2	Alternative 3	Alternative 4
10	16	12	12

Table 3.14-11 shows farm and levee road closures and realignments on agricultural land by alternative. Alternative 2 would have the most modifications to farm roads because it would be built on embankment through Important Farmland. Alternative 1 would have the fewest because it would pass through the largest concentration of urban land. Alternatives 1 and 2 would have an intermediate number of farm road modifications.

Table 3.14-11 Modifications to Farm Roads

Modifications to Farm Roads			
Alternative 1	Alternative 2	Alternative 3	Alternative 4
7	8	31	3

The project would provide equipment crossings at road closures (AG-IAMF#6), minimizing the impact of road closures on agricultural operations. During final design and in coordination with the property owners of land in use for agricultural operations, the Authority would finalize the realignments of any affected access roads to provide equipment crossings to minimize impediments to routine agricultural operations and normal business activities that may result from long-term project operations. Because equipment access would continue, regular agricultural operations as well as emergency responses to canal breaches would continue as before project construction. Furthermore, road crossings in rural areas would be provided approximately every 1 to 2 miles (TR-IAMF#2). Response times for potential canal breaches are expected to increase

by no more than 8 minutes because the increased distance would be relatively small. Specifically, road crossings would be provided no further apart than 2 miles. Assuming a speed of 30 mph, the time required to travel the additional 4 miles would be 8 minutes. Reduced emergency access times would reduce the risk of conversion of Important Farmland to nonagricultural use.

CEQA Conclusion

The impact with respect to disruption of agricultural drainage would be significant under CEQA for all four alternatives. In addition, the impact with respect to disruption of other agricultural infrastructure (e.g., utilities, irrigation infrastructure, roads) would be significant under CEQA for the site near Casa de Fruta (from Station 3148+60 to Station 3154). Otherwise, the impact with respect to disruption of other agricultural infrastructure would be less than significant for all four alternatives.

Throughout most of the alternatives, project features would minimize disruptions of utilities and irrigation infrastructure caused by construction of the project. New utilities, agricultural irrigation infrastructure, and utility and agricultural access roads would be installed before existing facilities are disconnected, and construction activities would be coordinated with service providers, minimizing service interruptions that would disrupt agricultural operations (PUE-IAMF#2 and TR-IAMF#2). The Authority would finalize realignments of any roads that would be closed for project construction to provide equipment crossings that allow access to agricultural land (AG-IAMF#6). The final project design would allow regular agricultural operations as well as emergency response to canal breaches to continue as before project construction.

However, at the site near Casa de Fruta (from Station 3148+60 to Station 3154) the project design involving embankment could result in permanent disruption of irrigation infrastructure on Important Farmland under all four alternatives, which would result in conversion of Important Farmland to nonagricultural uses. The impact under CEQA for all four alternatives is significant.

In addition, the project could result in permanent disruption of major agricultural drainage infrastructure. In this case, impacts could include increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems. Such damage would result in conversion of agricultural land to nonagricultural uses. However, no IAMFs exist to minimize effects of the project on Important Farmland as a result of disruption of agricultural drainage. Therefore, the impact under CEQA for all four alternatives is significant.

Mitigation measures to address this impact are identified in Section 3.14.9, CEQA Significance Conclusions. Section 3.14.7, Mitigation Measures, describes these measures in detail.

Impact AG#6: Permanent Interference with Aerial Spraying Activities for Important Farmland

The height of vertical HSR structures built as part of the project, such as communications radio towers, aerial guideways, and new ATC and PTC components including 10-foot-tall communications shelters or signal huts was considered in determining the potential for increased risk of collisions for aircraft used for aerial spraying of row crops and orchards on Important Farmland in the RSA and therefore their impact on Important Farmland. If HSR structures interfere with aerial spraying activities, agricultural productivity could decrease, potentially leading to indirect permanent conversion of Important Farmland to a nonagricultural use.

The HSR structures of greatest concern for aerial spraying are the 100-foot-tall communications radio towers that would be placed approximately every 1.5 to 3 miles along the project alignment adjacent to or near the HSR right-of-way. These towers would be among the tallest structures in the RSA. The HSR vertical structures would be permanent, and any changes to aerial spraying patterns would be permanent. However, construction of these towers would follow federal, state, and local safety guidelines for radio masts, including lighting, and thus provide for proper visibility to aircraft conducting aerial spraying. Therefore, the communications radio towers are not anticipated to cause substantial changes to aerial spraying patterns and thus result in permanent conversion of Important Farmland to a nonagricultural use.

Electricity transmission towers associated with the network upgrades include towers at traction power substations, traction power switching and paralleling stations, backup and emergency power supply sources for stations and facilities, and electrical interconnections. Reconductoring on the Spring to Llagas and Green Valley to Llagas 115-kilovolt power lines would be installed on existing towers or underground. Because no new towers or poles would be installed for electricity transmission, network upgrades are not anticipated to result in changes in spraying patterns and would not cause permanent conversion of Important Farmland to a nonagricultural use.

Aerial guideways and communications shelters or signal huts that are part of the ATC and PTC systems are not tall enough to interfere with aerial spraying patterns. Therefore, construction of these project components would not result in changes in spraying patterns and would not cause permanent conversion of Important Farmland to a nonagricultural use.

CEQA Conclusion

The impact under CEQA would be less than significant for all four alternatives because the HSR wireless communication towers would be widely spaced in the existing right-of-way and because their placement can be flexible. For these reasons, the area in which pilots would need to alter spraying patterns would be limited. The project is not anticipated to involve changes to the existing environment that, because of their location, would result in the conversion of Important Farmland to nonagricultural use. Therefore, CEQA does not require mitigation.

Operations Impacts

Operations of the project would include scheduled HSR train service as well as inspection and maintenance activities along the track, railroad right-of-way, and the structures, fencing, power system, train control, and communication facilities. Chapter 2 describes operations and maintenance activities.

Impact AG#7: Permanent Induced Wind Interference with Agricultural Activities on Important Farmland

During operations, HSR trains would generate wind along the sides and at the rear of the train (known as *wake*). High winds in the RSA could interfere with agricultural activities such as insect pollination or aerial pesticide applications that could have an indirect impact on Important Farmland. For example, research on honeybees found that bees do not forage in wind stronger than 12 mph (Authority 2012). Wind speed was considered in determining whether HSR operations would lead to indirect permanent conversion of Important Farmland.

HSR trains are streamlined, by design, in order to remain stable at operational speeds. A 1999 study by the Federal Railroad Administration found that the strength of the airflow generated by an HSR train depends on the distance from the train, the train's geometry, and the train's operating speed. The airflow dissipates in less than 1 second (FRA 1999). Another study found that train-induced wind has a velocity of approximately 10 percent of the train velocity at a distance of 3 meters (approximately 10 feet) from the train (Neppert and Sanderson 1977). Extrapolation of data from existing studies suggests that an HSR train traveling at 220 mph would generate a wind gust lasting less than 1 second at a distance of approximately 10 feet from the train tracks. Induced airflow is estimated at approximately 3 mph at the edge of the HSR right-of-way (Authority 2012) (Volume 2, Appendix 3.14-D).

Crops would be several feet beyond the right-of-way. The airflow at the edge of the HSR right-of-way would not be strong enough to interfere with agricultural activities such as insect pollination or aerial pesticide application. In addition, the attenuated wind speed is much less than the maximum wind speed that bees can tolerate, and bees would have unaffected access across the HSR right-of-way between trains. The risk of induced wind creating conditions to cause pesticides to drift onto adjoining fields or the HSR right-of-way is also minimal because of the expected attenuated wind speed at the edge of the right-of-way (Authority 2012). Accordingly, even for the portions of the project alternatives on the ground, the impact from wind would be minimal and would not lead to the indirect permanent conversion of Important Farmland to nonagricultural use.

Operations and maintenance activities associated with the electrical transmission facilities would be the same as under existing conditions. The electrical transmission facilities would not generate any wind and would not lead to the indirect permanent conversion of Important Farmland to nonagricultural use.

CEQA Conclusion

There would be no impact under CEQA for any of the project alternatives because operations of HSR trains traveling at the maximum speed of 220 mph would generate a wind gust lasting less than 1 second at a distance of approximately 10 feet from the train tracks. This distance is within the right-of-way. The wind gust would not be strong enough to interfere with any existing or future agricultural activities. Important Farmland would not be converted to nonagricultural use. Therefore, CEQA does not require mitigation.

Impact AG#8: Permanent Reduction of Important Farmland Protected by Williamson Act Contracts

Parcels protected under Williamson Act contracts do not always contain Important Farmland.¹⁰ Permanent direct conversion of parcels of Important Farmland under Williamson Act contract is considered in Impact AG#2 and indirect conversion of Important Farmland under Williamson Act contract from creation of remnant parcels is considered in Impact AG#3. These impacts are not repeated here. Direct and indirect impacts on Important Farmland occur on parcels that are under Williamson Act contract and parcels that are not under contract.

Construction of the project alternatives could result in remnant parcels that are smaller than the county threshold for Williamson Act contracts. Remnant parcels would be created by the HSR right-of-way bisecting a parcel or by severing access to a parcel.

Volume 2, Appendix 3.14-E provides the list of parcels under Williamson Act contract that could potentially be affected by construction of the project, along with the total number and acreage of parcels that would be smaller than each county's threshold for Williamson Act contracts. Creation of remainder parcels below each county's threshold for Williamson Act contracts could also potentially result in a change in a parcel's tax status that may affect agricultural profitability. Refer to Section 3.12, Impact SO#14, for a discussion of the socioeconomic implications of potential tax status changes for remnant parcels that are smaller than county requirements for Williamson Act contracts.

However, Important Farmland can be in agricultural use regardless of whether it is part of a Williamson Act contract. The total acreage of land in agricultural use (Important Farmland and Grazing Land)¹¹ exceeded the acreage of land under Williamson Act contract in 2014 in all three counties (Section 3.14.5, Affected Environment). Therefore, additional conversion of Important Farmland (beyond what is reported in Impact AG#2 and Impact AG#3) as a result of loss of Williamson Act contract status is not anticipated to occur under any of the project alternatives.

Reconductoring would not affect the implementation of Williamson Act contracts. California Government Code Section 51238 defines erecting, constructing, altering, or maintaining electric power and communication facilities as statutorily compatible uses with protected agricultural uses under the Williamson Act.

CEQA Conclusion

The impact under CEQA would be less than significant for all four alternatives. Conversion of Important Farmland as a result of the project to nonagricultural use is described in Impact AG#2 and Impact AG#3. This includes land under Williamson Act contract. No Important Farmland under Williamson Act contract other than that accounted for in Impact AG#2 and Impact AG#3 would be converted to nonagricultural use. Therefore, CEQA does not require mitigation.

¹⁰ Similarly, not all Important Farmland is protected by Williamson Act.

¹¹ Grazing Land is included in the calculation of agricultural land because Williamson Act contracts include Important Farmland and Grazing Land.

3.14.7 Mitigation Measures

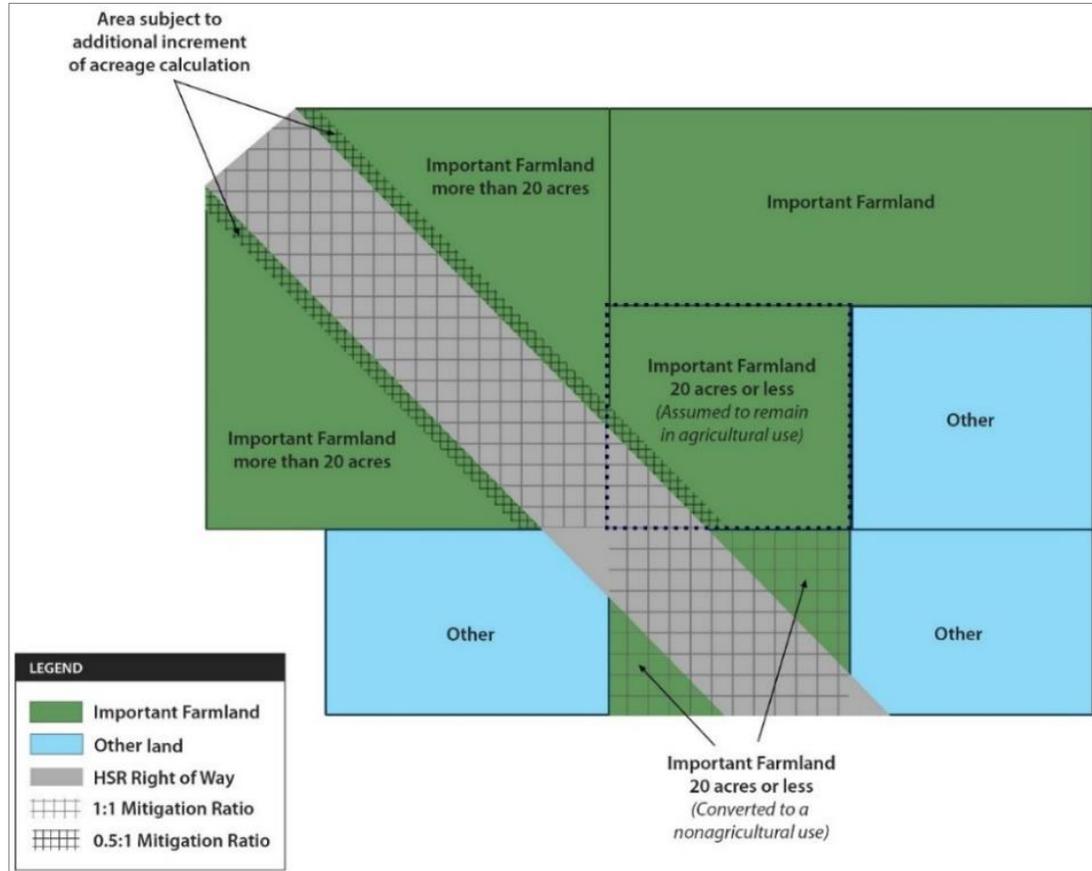
The Authority has developed mitigation measures that would be implemented to address direct and indirect impacts on Important Farmland that would result in permanent conversion of Important Farmland to a nonagricultural use, generated by project construction and operations. The mitigation measures described in this section would be implemented with the objective of conserving Important Farmland. Mitigation ratios would determine the amount of Important Farmland that must be conserved given an acreage of land directly or indirectly affected, as provided in AG-MM#1.

AG-MM#1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)

The Authority has entered into an agreement with the DOC California Farmland Conservancy Program to implement agricultural land mitigation for the HSR system. The Authority would fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. The performance standards for this measure are to preserve Important Farmland in an amount commensurate with the quantity and quality of converted farmlands in the same agricultural regions as the impacts occur, at a replacement ratio of not less than 1:1 for lands that are permanently converted to nonagricultural use by the project.

In addition to mitigation for Important Farmlands that are permanently converted to nonagricultural use, the Authority would fund the purchase of an additional increment of acreage for agricultural conservation easements at a ratio of not less than 0.5:1 for Important Farmland within a 25-foot-wide area adjacent to permanently fenced HSR infrastructure. The Authority would document implementation of this measure through annual issuance of a compliance memorandum. Mitigation implemented under this measure would be consistent with and would help advance mitigation commitments at the program level, including mitigation intended to address the conversion of Important Farmland.

Figure 3.14-4 illustrates how mitigation ratios would be applied to parcels of Important Farmland affected by the project.



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Figure 3.14-4 Important Farmland Remnant Parcels and Important Farmland Mitigation Ratios

AG-MM#2: Minimize the Area of Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) Required for HSR Guideway

To minimize direct and indirect impacts on Important Farmland resulting in permanent conversion of Important Farmland to nonagricultural use, mitigation would restrict the project footprint to the minimum dimensions and area required to operate and maintain the aerial guideway. The Authority would design the permanent right-of-way so that it would not exceed the dimensions or area required to operate and maintain the aerial guideway, specifically 40 feet on either side of the track centerline, with the exception of the proposed viaduct section near Casa de Fruta, between stations 3220 and 4250, where permanent right-of-way must be 45 feet on either side of the track centerline, in order to minimize the area of Important Farmland permanently converted to nonagricultural use by the project.

AG-MM#3: Evaluate Modified Access to Remnant Parcels with Landowner Input

Prior to construction where partial property acquisitions would result in division of agricultural parcels by the HSR alignment or facilities (i.e., severed parcels), the Authority would evaluate potential for modified access with the property owner's input to allow continued use of agricultural lands and facilities. Any such access would remain within the approved project footprint. Modified access could include the design of overcrossings or undercrossings to allow farm equipment passage. The contractor would prepare a technical memorandum for Authority review and approval detailing the contractor's outreach to affected property owners, evaluation results, and

what measures were implemented to address severed parcels. Any modified access would remain within the existing footprint.

AG-MM#4: Relocate and Reconnect Drainage Facilities before Disconnecting Original Facilities

Where relocating an agricultural drainage facility on Important Farmland within the project footprint would be necessary, the contractor would verify the replaced facility is operational prior to disconnecting the original facility, where feasible. The Authority would coordinate with landowners during preliminary engineering for design-build procurement or during final design for construction to determine drainage facility relocation preferences that would reduce impacts on continued operation of drainage facilities. These relocation preferences would be included in the construction contract and include proximity to and clearance from existing infrastructure, access, slope, and the ability to stay within public road rights-of-way or existing easements, where feasible. The construction contractor would document all relocations in a memorandum for Authority review and approval. Relocation of the drainage facility would be coordinated with landowners and would remain within the existing project footprint.

AG-MM#5: Avoid Infrastructure Serving Important Farmland near Casa de Fruta (from Station 3148+60 to Station 3154)

In order to avoid impacts on irrigation infrastructure on Important Farmland, the Authority would convert the embankment to an aerial guideway near Casa de Fruta (from Station 3148+60 to Station 3154). The Authority would implement this design refinement, consistent with geotechnical investigations to confirm the feasibility of a viaduct in this location, during preliminary engineering for design-build procurement or during final design for construction. The construction contractor would implement the revised design. Modification of design would remain within the existing project footprint. AG-MM#4 would also result in minor, localized beneficial effects for wildlife.

3.14.8 Impact Summary for NEPA Comparison of Alternatives

As described in Section 3.1.5.4, the impacts of the project under NEPA are compared to the No Project condition when evaluating the impact of the project on the resource. The impact determination is based on the context and intensity of the change that would be generated by the construction and operations of the project alternatives. As shown in the table, IAMFs apply equally across alternatives. Table 3.14-12 compares the project impacts by alternative and is followed by a summary of the impacts.

Table 3.14-12 Comparison of Project Alternative Impacts for Agricultural Farmland

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Important Farmland				
Impact AG#1: Temporary Use of Important Farmland	<p>Project construction would result in the temporary use of 617.6 acres of Important Farmland.</p> <p>IAMFs to require the Authority to provide advance written notice to agricultural property owners or leaseholders immediately adjacent to the disturbance limits for the project footprint (AG-IAMF#4) and to require the Authority to restore affected Important Farmland after construction (AG-IAMF#1) would minimize potential temporary impacts on Important Farmland and accordingly the alternative would not result in the permanent conversion of important farmland to nonagricultural use.</p>	<p>Project construction would result in the temporary use of 658.6 acres of Important Farmland. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would result in the temporary use of 671.9 acres of Important Farmland. This would be the greatest impact among the alternatives. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would result in the temporary use of 460.9 acres of Important Farmland. This would be the least impact among the alternatives. The same IAMFs would be incorporated into the project design as Alternative 1.</p>
Impact AG#2: Permanent Conversion of Important Farmland to Nonagricultural Use	<p>Project construction would result in permanent conversion of 1,035.5 acres of Important Farmland to nonagricultural use.</p> <p>The score for each county on Form NRCS-CPA-106 would be below the LESA threshold of 160.¹ No federal direction is required.</p>	<p>Project construction would result in permanent conversion of 1,181.3 acres of Important Farmland to nonagricultural use.</p> <p>The score for each county on Form NRCS-CPA-106 would be below the LESA threshold of 160.¹ No federal direction is required.</p>	<p>Project construction would result in permanent conversion of 1,192.5 acres of Important Farmland. This would be the greatest impact among the alternatives. The score for each county on Form NRCS-CPA-106 would be below the LESA threshold of 160.¹ No federal direction is required.</p>	<p>Project construction would result in permanent conversion of 1,032.6 acres of Important Farmland. This would be the least impact among the alternatives. The score for each county on Form NRCS-CPA-106 would be below the LESA threshold of 160.¹ No federal direction is required.</p>

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<p>Impact AG#3: Permanent Creation of Remnant Parcels of Important Farmland</p>	<p>Project construction would result in permanent conversion of 162.9 acres of Important Farmland through the creation of remnant parcels.</p> <p>AG-IAMF#3 would minimize the impact on Important Farmland by providing for continued agricultural use on the maximum feasible amount of remnant parcels through the sale of remnant parcels to neighboring landowners for consolidation with adjacent farmland properties. However, permanent conversion would still result.</p>	<p>Project construction would result in permanent conversion of 244.3 acres of Important Farmland through the creation of remnant parcels. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would result in permanent conversion of 252.8 acres of Important Farmland through the creation of remnant parcels. This would have the greatest impact among the alternatives. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would result in permanent conversion of 147.0 acres of Important Farmland through the creation of remnant parcels. This would have the least impact among the alternatives. The same IAMFs would be incorporated into the project design as Alternative 1.</p>
<p>Impact AG#4: Temporary Disruption of Agricultural Infrastructure Serving Important Farmland</p>	<p>Project construction would temporarily disrupt 215 electrical lines and 20 pipelines or canals.</p> <p>PUE-IAMF#4 would involve coordination with service providers to minimize or avoid interruptions in service, PUE-IAMF#2 would involve installation of new facilities before disconnecting old facilities, and PUE-IAMF#3 would involve advance notification of service disruptions to customers to minimize the impacts on utilities and irrigation infrastructure</p> <p>TR-IAMF#2 would minimize traffic disruption with a temporary construction plan to require detours and signage, AG-IAMF#5 would provide for temporary livestock and equipment crossings, and AG-IAMF#4 would provide advance notification to adjacent agricultural property owners or leaseholders.</p> <p>These IAMFs would minimize potential temporary impacts on Important Farmland and the alternative would not result in permanent conversion of Important Farmland to nonagricultural use as a result of disruption of utilities, irrigation infrastructure, or roads.</p> <p>Project construction could potentially temporarily disrupt agricultural drainage infrastructure. This disruption would result in conversion of Important Farmland to nonagricultural use.</p>	<p>Project construction would temporarily disrupt 231 electrical lines and 20 pipelines or canals. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would temporarily disrupt 210 electrical lines and 17 pipelines or canals. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would temporarily disrupt 207 electrical lines, and 18 pipelines or canals. The same IAMFs would be incorporated into the project design as Alternative 1.</p>

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<p>Impact AG#5: Permanent Disruption of Agricultural Infrastructure Serving Important Farmland</p>	<p>Project construction would result in the permanent closure of 10 roads and 7 permanent farm road modifications.</p> <p>PUE-IAMF#2 would provide that any new irrigation facilities would be installed and operational before existing facilities would be disconnected. AG-IAMF#6 would provide for permanent equipment crossings, minimizing the impact of road closures on agricultural operations. TR-IAMF#2 would provide for road crossings in rural areas every 1 to 2 miles. These IAMFs would minimize the impact of agricultural infrastructure disruption on Important Farmland as a result of disruption of utilities, irrigation infrastructure, or roads.</p> <p>Project construction could potentially permanently disrupt agricultural drainage infrastructure. This disruption would result in conversion of Important Farmland to nonagricultural use.</p> <p>From Station 3148+60 to Station 3154 (near Casa de Fruta), embankment could interfere with operation of parcel-specific irrigation infrastructure, potentially resulting in conversion of Important Farmland to nonagricultural use.</p>	<p>Project construction would result in the permanent closure of 16 roads and 8 permanent farm road modifications. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would result in the permanent closure of 12 roads and 31 permanent farm road modifications. This would be the greatest impact among the alternatives. The same IAMFs would be incorporated into the project design as Alternative 1.</p>	<p>Project construction would result in the permanent closure of 12 roads and 3 permanent farm road modifications. This would be the least impact among the alternatives. The same IAMFs would be incorporated into the project design as Alternative 1.</p>
<p>Impact AG#6: Permanent Interference with Aerial Spraying Activities for Important Farmland</p>	<p>Project construction would involve building widely spaced towers that would not result in changes in aerial spraying patterns leading to the conversion of Important Farmland to nonagricultural use.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>
<p>Impact AG#7: Permanent Induced Wind Interference with Agricultural Activities on Important Farmland</p>	<p>The wind at the edge of the HSR right-of-way during project operations would not be strong enough to interfere with agricultural activities such as insect pollination or aerial pesticide application, and would not result in indirect permanent conversion of Important Farmland to nonagricultural use.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>

Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Farmland Protected by Williamson Act Contracts				
Impact AG#8: Reduction of Important Farmland Protected by Williamson Act Contracts	The project would not affect implementation of the Williamson Act.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.

¹ LESA scores are not aggregated over an entire alternative but instead are calculated for the alternative within each county.

LESA = Land Evaluation and Site Assessment

IAMF = impact avoidance and minimization feature

HSR = high-speed rail

Construction of the project in areas that are Important Farmland would require a temporary use in the TCE for the alternatives that would last for the approximately 6-year construction duration, plus 2 additional years for reconductoring. This use would constitute direct temporary impacts on Important Farmland. Construction of Alternative 1 would use 617.6 acres of Important Farmland, Alternative 2 would use 658.7 acres, Alternative 3 would use 671.9 acres, and Alternative 4 would use 460.9 acres. The project design includes features that would provide agricultural property owners or leaseholders sufficient lead time to make changes to their operations in response to project construction (AG-IAMF#4). In addition, after construction Important Farmland would be restored as close to the pre-construction condition as possible (AG-IAMF#1).

Construction of the project, including acquisition of land for the construction of the HSR right-of-way, access easement, stations, and maintenance facilities, would require the permanent use of Important Farmland and the conversion of Important Farmland to a nonagricultural use. Alternative 1 would result in the direct conversion of 1,035.5 acres, Alternative 2 would convert 1,181.3 acres, Alternative 3 would convert 1,192.5 acres, and Alternative 4 would convert 1,032.6 acres. Each of the four project alternatives has a LESA score below 160, in all three counties affected by the project, which is below the threshold at which the FPPA requires additional evaluation to be undertaken. Because none of the project alternatives received over 160 points in any of the three counties, NRCS does not make recommendations regarding the selection among alternatives based on LESA score.

In addition, construction of the project would result in the permanent conversion of Important Farmland from the creation of remnant parcels of Important Farmland because of severance. Alternatives 1, 2, 3, and 4 would convert 162.9 acres, 244.3 acres, 252.8, and 147.0 acres, respectively. Project features, specifically the Farmland Consolidation Program (AG-IAMF#3), would provide for continued agricultural use on the maximum feasible amount of remnant parcels.

Permanent direct and indirect impacts on Important Farmland as a result of conversion to nonagricultural use would be reduced through AG-MM#1. Under this mitigation, the Authority would fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. With implementation of this mitigation, impacts would be reduced, but there would still be conversion of Important Farmland to nonagricultural use. In addition, impacts on Important Farmland would be reduced through AG-MM#2, which would minimize the area required to operate and maintain the aerial guideway. The permanent right-of-way would not exceed the dimensions or area required to operate and maintain the aerial guideway, specifically 40 feet on either side of the track centerline, with the exception of the proposed viaduct section near Casa de Fruta, between stations 3220 and 4250, where the permanent right-of-way must be 45 feet on either side of the track centerline. With implementation of this mitigation, impacts would be reduced, but there would still be conversion of Important Farmland to nonagricultural use. Further, impacts on Important Farmland affected through parcel severance would be reduced through AG-MM#3, which would provide for evaluation, with property owner input, of potential modified access for remnant parcels that would no longer have access after HSR construction. Modified access would allow for continued agricultural use on some remnant parcels. With implementation of this mitigation, impacts would be reduced, but there would still be conversion of Important Farmland to nonagricultural use.

To accommodate construction activities, some infrastructure serving Important Farmland would be temporarily interrupted or relocated, which would result in temporary disruption of utilities, agricultural irrigation infrastructure, utility and agricultural access roads and agricultural drainage infrastructure. Alternative 1 would temporarily disrupt 215 electrical lines and 20 pipelines or canals. Alternative 2 would temporarily disrupt 231 electrical lines and 20 pipelines or canals. Alternative 3 would temporarily disrupt 210 electrical lines and 17 pipelines or canals. Alternative 4 would temporarily disrupt 207 electrical lines and 18 pipelines or canals. If utilities or agricultural irrigation infrastructure serving Important Farmland would have to be relocated, the project design includes features (PUE-IAMF#2, PUE-IAMF#3, PUE-IAMF#4) to avoid temporary disruption of utilities, power supply infrastructure, and irrigation infrastructure. In addition, construction of the project and reconductoring of the electrical line during construction would occasionally require

short-term road closures. The project design provides for a temporary construction plan to require detours and signage (TR-IAMF#2), temporary livestock and equipment crossings to minimize delays and limited access to agricultural infrastructure from temporary road closures (AG-IAMF#5), and advance notification to adjacent agricultural property owners or leaseholders (AG-IAMF#4). However, no IAMFs are available to minimize potential impacts related to interruption or relocation of agricultural drainage infrastructure. Temporary indirect impacts on Important Farmland as a result of interruption or relocation of major agricultural drainage infrastructure would be reduced through AG-MM#4. Under this mitigation, the Authority's contractor would verify the replaced facility is operational prior to disconnecting the original facility, where feasible. The Authority would coordinate with landowners during preliminary engineering for design-build procurement or during final design for construction to determine drainage to determine facility relocation preferences that would reduce impacts on continued operation of drainage facilities. With implementation of this mitigation, impacts related to temporary disruption of agricultural drainage infrastructure would be reduced to less than significant.

Construction of the project could also cause permanent agriculture infrastructure disruption, including disruption to or relocation of major agricultural drainage and irrigation infrastructure, road closures, and farm and levee road modifications. For major agricultural drainage infrastructure, permanent indirect impacts on Important Farmland as a result of interruption or relocation of major agricultural drainage infrastructure would be reduced through AG-MM#4. Under this mitigation measure, the contractor would verify the replaced facility is operational prior to disconnecting the original facility, where feasible. The Authority would coordinate with landowners during preliminary engineering for design-build procurement or during final design for construction to determine drainage to determine facility relocation preferences that would reduce impacts on continued operation of drainage facilities. For irrigation infrastructure disruption, at most sites throughout the alternatives, PUE-IAMF#2 would provide that any new irrigation facilities would be installed and operational before existing facilities would be disconnected. Construction of the project would disrupt irrigated facilities at a site near Casa de Fruta (from Station 3148+60 to Station 3154), and because the displacement would be permanent, PUE-IAMF#2 would be ineffective. Impacts on the facilities as a result of displacement of the irrigation infrastructure would be reduced through AG-MM#5. Under this mitigation measure, the Authority would convert the embankment to an aerial guideway near Casa de Fruta (from Station 3148+60 to Station 3154) following geotechnical investigations to confirm that it is safe to build a viaduct in this location. With implementation of this mitigation, impacts related to disruption of the agricultural irrigation infrastructure at the site near Casa de Fruta (from Station 3148+60 to Station 3154) would be less than significant. For road infrastructure, Alternative 1 would require 10 permanent road closures on agricultural land and 7 farm road modifications, Alternative 2 would require 16 road closures and 8 farm road modifications, Alternative 3 would require 12 road closures and 31 farm road modifications, and Alternative 4 would require 12 road closures and 3 farm road modifications. The project design would provide for equipment crossings at road closures (AG-IAMF#6). The project design would also provide for road crossings in rural areas every 1 to 2 miles (TR-IAMF#2). No IAMFs are available to minimize potential impacts related to interruption or relocation of agricultural drainage infrastructure. With implementation of this mitigation, impacts related to permanent disruption of agricultural drainage infrastructure would be reduced to less than significant.

The height of HSR structures, including communications radio towers, aerial guideways, and new ATC and PTC components including 10-foot-tall communications shelters or signal huts, built as part of the project, would change the conditions under which aerial spraying of row crops and orchards on Important Farmland occurs. However, communications radio towers would be widely spaced, and reductoring would take place on existing towers or underground. Aerial guideways and communications shelters or signal huts that are part of the ATC and PTC systems are not tall enough to interfere with aerial spraying patterns. Therefore, these structures are not anticipated to result in changes in spraying patterns.

During operations, HSR trains would generate wind along the sides and at the rear of the train (known as *wake*). High winds have the potential to interfere with agricultural activities such as

insect pollination or aerial pesticide applications which would lead to indirect permanent conversion of Important Farmland. However, induced airflow at the edge of the HSR right-of-way would be minor and similar to the existing condition. Induced airflow would therefore not be strong enough to interfere with agricultural activities such as insect pollination or aerial pesticide application, and would not result in indirect permanent conversion of Important Farmland to nonagricultural use.

No additional conversion of Important Farmland under Williamson Act contract would occur, other than that accounted for under the permanent conversion impact (Impact AG#2) and that accounted for under the indirect conversion impact (Impact AG#3) which describes Important Farmland remainder parcels that are too small to continue in agricultural use or that are severed from access. Reconductoring would not remove any lands protected by Williamson Act contracts.

3.14.9 CEQA Significance Conclusions

Table 3.14-13 identifies the CEQA significance determinations for each impact discussed in Section 3.14.6. A summary of the significant impacts, mitigation measures, and factors supporting the significance conclusion after mitigation follows the table.

Table 3.14-13 CEQA Significance Conclusions and Mitigation Measures for Agricultural Farmland

Impacts	Impact Description and CEQA Level of Significance	Mitigation Measure	CEQA Level of Significance after Mitigation
Important Farmland			
Impact AG#1: Temporary Use of Important Farmland	Less than significant for all alternatives. The project would require a temporary use of Important Farmland in the TCEs but would not result in the permanent conversion of Important Farmland to nonagricultural use by restoring land used during construction to pre-construction condition (AG-IAMF#1) and by providing advance written notice of upcoming construction activities to agricultural landowners and leaseholders (AG-IAMF#4).	No mitigation measures are required.	Not applicable
Impact AG#2: Permanent Conversion of Important Farmland to Nonagricultural Use	Significant for all alternatives. Construction of the project would result in the permanent conversion of Important Farmland to nonagricultural use.	AG-MM#1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) AG-MM#2: Minimize the Area of Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) Required for HSR Guideway	Significant and Unavoidable
Impact AG#3: Permanent Creation of Remnant Parcels of Important Farmland	Significant for all alternatives. Creation of remnant parcels resulting from construction of the project would result in the permanent conversion of Important Farmland to nonagricultural use, but project design (AG-IAMF#3) would minimize the acreage of Important Farmland converted because of creation of remnant parcels through a Farmland Consolidation Program.	AG-MM#1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) AG-MM#2: Minimize the Area of Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) Required for HSR Guideway AG-MM#3: Evaluate Modified Access to Remnant Parcels with Landowner Input	Significant and Unavoidable

Impacts	Impact Description and CEQA Level of Significance	Mitigation Measure	CEQA Level of Significance after Mitigation
<p>Impact AG#4: Temporary Disruption of Agricultural Infrastructure Serving Important Farmland</p>	<p>Significant for all alternatives. Some infrastructure serving Important Farmland would be temporarily interrupted or relocated. Some roads would be temporarily closed. Project design features would minimize disruptions of agricultural infrastructure and corresponding indirect conversion of Important Farmland to nonagricultural use through coordinating utility relocation before shutting off service to existing utilities (PUE-IAMF#4), notifying the public in advance of planned service disruptions (PUE-IAMF#3), coordinating utility disruptions with utility service providers (PUE-IAMF#2), providing for temporary equipment and livestock access to agricultural land (AG-IAMF#5), providing advance written notice of upcoming construction activities to agricultural landowners and leaseholders (AG-IAMF#4), and providing for detours and signage (TR-IAMF#2). The project could result in temporary disruption of agricultural drainage infrastructure. Impacts could include increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems, resulting in conversion of Important Farmland to nonagricultural uses.</p>	<p>AG-MM#4: Relocate and Reconnect Drainage Facilities before Disconnecting Original Facilities</p>	<p>Less than Significant</p>
<p>Impact AG#5: Permanent Disruption of Agricultural Infrastructure Serving Important Farmland</p>	<p>Significant for all alternatives. Construction of the project would require relocation of some irrigation facilities and some road closures. Project design features would minimize disruptions of agricultural infrastructure at most locations and corresponding indirect conversion of Important Farmland to nonagricultural use from irrigation infrastructure by requiring new facilities to be operational before existing facilities are disconnected (PUE-IAMF#2), and from permanent road closures and corresponding indirect conversion of Important Farmland by providing for permanent equipment access to agricultural land (AG-IAMF#6) and providing for roads in agricultural areas spaced no more widely than 1 or 2 miles (TR-IAMF#2). From Station 3148+60 to Station 3154 (near Casa de Fruta), disruption of agricultural irrigation infrastructure would result in crop damage or loss, potentially leading to conversion of agricultural land to nonagricultural use. The project could result in permanent disruption of agricultural drainage infrastructure, which could include increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems, resulting in conversion of Important Farmland to nonagricultural uses.</p>	<p>AG-MM#4: Relocate and Reconnect Drainage Facilities before Disconnecting Original Facilities AG-MM#5: Avoid Infrastructure Serving Important Farmland from Station 3148+60 to Station 3154 (near Casa de Fruta)</p>	<p>Less than Significant</p>

Impacts	Impact Description and CEQA Level of Significance	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact AG#6: Permanent Interference with Aerial Spraying Activities for Important Farmland	Less than significant for all alternatives. The potential interference with aerial spraying for Important Farmland resulting from construction of the project would not restrict aerial spraying to the extent that an agriculture use is no longer feasible or indirectly convert Important Farmland to nonagricultural use.	No mitigation measures are required.	Not applicable
Impact AG#7: Permanent Induced Wind Interference with Agricultural Activities on Important Farmland	Less than significant for all alternatives. Induced airflow from streamlined HSR trains would be low and similar to the existing condition, and would not have the potential to interfere with agricultural activities such as insect pollination or aerial pesticide applications or indirectly convert Important Farmland to nonagricultural use.	No mitigation measures are required.	Not applicable
Protected Farmland			
Impact AG#8: Reduction of Important Farmland Protected by Williamson Act Contracts	Less than significant for all alternatives. The project would not affect the implementation of the Williamson Act.	No mitigation measures are required.	Not applicable

CEQA = California Environmental Quality Act
 IAMF = impact avoidance and minimization feature
 HSR = high-speed rail

Impact AG#2: Permanent Conversion of Important Farmland to Nonagricultural Use

All four project alternatives would have a significant direct impact on Important Farmland as a result of permanent conversion of Important Farmland to nonagricultural use caused by direct use of the land. Construction of the project, including acquisition of land for the construction of the HSR right-of-way, access easement, stations, and maintenance facilities, would require the long-term use of Important Farmland, resulting in direct permanent impacts or the conversion of Important Farmland to a nonagricultural use.

The Authority would implement a mitigation measure to reduce impacts on Important Farmland. AG-MM#1 would identify suitable agricultural land for mitigation of impacts and fund the purchase of agricultural conservation easements from willing sellers at a replacement ratio of 1:1 for lands that are directly permanently converted to nonagricultural use by the project.

This mitigation measure would minimize the overall impact of permanent conversion of Important Farmland to a nonagricultural use because it would preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, in the same agricultural regions as the impacts occur. However, because it is not possible to create farmland, there would be a net loss of Important Farmland. Figure 3.14-4 illustrates where 1:1 and 0.5:1 mitigation ratios would be applied for impacts on Important Farmland, and Table 3.14-14 shows the acreage of Important Farmland subject to mitigation at the two ratios, by alternative.

Table 3.14-14 Important Farmland Mitigation Calculations

Alternative	Mitigation Ratio 1:1 (acres)	Mitigation Ratio 0.5:1 (acres)	Total Mitigation (acres)
Alternative 1	1,035.5	149.2	1,184.7
Alternative 2	1,181.3	168.2	1,349.5
Alternative 3	1,192.5	159.7	1,352.2
Alternative 4	1,179.5	148.9	1,328.4

Implementing AG-MM#1 would place existing agricultural lands that are currently not under any type of agricultural conservation easement into a new easement that would permanently protect the agricultural land from future conversion to nonagricultural uses. No land uses would be changed by the mitigation; therefore, there would be no secondary impacts. The mitigation measure would benefit the agricultural community by preserving land for agricultural use.

In addition, AG-MM#2 would restrict the project footprint to the minimum dimensions and area required to operate and maintain the aerial guideway, thus minimizing the area of Important Farmland near aerial guideways that would be converted from agricultural to nonagricultural uses. The permanent right-of-way would not exceed the dimensions or area required to operate and maintain the aerial guideway, specifically 40 feet on either side of the track centerline, with the exception of the proposed viaduct section near Casa de Fruta, between stations 3220 and 4250, where the permanent right-of-way must be 45 feet on either side of the track centerline. While this mitigation measure would minimize the area of Important Farmland near aerial guideways that would be converted, it would not avoid all conversion. No land uses would be changed by the mitigation; therefore, there would be no secondary impacts. Further, because all work would remain within the existing footprint, any impacts associated with construction (e.g., air quality, biological resources) have been accounted for with existing environmental analysis.

These mitigation measures would preserve some Important Farmland and minimize the impacts; however, there would still be a net loss of Important Farmland. While these mitigation measures would provide for preservation of agricultural land in agricultural conservation easements and minimize the area of Important Farmland near aerial guideways that would be converted, they

would not avoid all conversion. Therefore, the impact would be significant and unavoidable under CEQA.

Impact AG#3: Permanent Creation of Remnant Parcels of Important Farmland

All four project alternatives would have a significant indirect impact on Important Farmland as a result of the creation of remnant parcels through parcel severance. Remnant parcels would be severed from a larger parcel either because the guideway alignment would bisect the parcel or because roadway access to these parcels would be restricted or eliminated. Some remnant parcels would remain in agricultural use because of their adjacency to another field with access, large size, or farmable shape. However, remnant parcels of 20 acres or less have the potential to become nonviable because of lack of access, size, shape, location, or other hardship.

The Farmland Consolidation Program (AG-IAMF#3), which is administered by the Authority, would provide for continued agricultural use on the maximum feasible amount of remnant parcels by facilitating the sale of remnant parcels to neighboring landowners for consolidation with adjacent farmland properties. Remnant parcels that are considered viable candidates for consolidation with adjoining agricultural properties through the Farmland Consolidation Program are anticipated to remain in agricultural use. Remnant parcels that are not considered viable to continue in agricultural use are considered to be indirectly converted as a result of parcel severance.

The Authority would implement a mitigation measure to reduce impacts on Important Farmland. AG-MM#1 would identify suitable agricultural land for mitigation of impacts and fund the purchase of agricultural conservation easements from willing sellers at a replacement ratio of 0.5:1 for lands that are permanently converted to nonagricultural use by the project as a result of parcel severance. Figure 3.14-4 illustrates how the ratios would be applied to parcels of Important Farmland affected by the project. Table 3.14-14 shows the acreage of Important Farmland subject to mitigation at the two ratios, by alternative.

In addition, AG-MM#2 would restrict the project footprint to the minimum dimensions and area required to operate and maintain the aerial guideway, thus minimizing the area of Important Farmland near aerial guideways that would be converted from agricultural to nonagricultural uses. No land uses would be changed by the mitigation; therefore, there would be no secondary impacts. Further, because all work would remain within the existing footprint, any impacts associated with construction (e.g., air quality, biological resources) have been accounted for with existing environmental analysis.

Further, AG-MM#3 would provide for evaluation of the potential for modified access for remnant parcels with property owner input. In cases where such modified access is possible, continued agricultural activities would be feasible, resulting in less conversion of Important Farmland to nonagricultural uses. Any impacts associated with construction (e.g., air quality, biological resources) have been accounted for with existing environmental analysis.

These mitigation measures would preserve some Important Farmland and minimize the impacts; however, there would still be a net loss of Important Farmland. While these mitigation measures would provide for preservation of agricultural land in agricultural conservation easements, minimize the area of Important Farmland near aerial guideways that would be converted, and provide for continued access to severed parcels, they would not avoid all conversion. Therefore, the impact would be significant and unavoidable under CEQA.

Impact AG#4: Temporary Disruption of Agricultural Infrastructure Serving Important Farmland

All four project alternatives would have a significant indirect impact on Important Farmland as a result of temporary disruption of agricultural infrastructure serving Important Farmland. While IAMFs would avoid an impact related to disruption to or relocations of utilities, irrigation, and road infrastructure, disruption to or relocation of agricultural drainage infrastructure could result in increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems. AG-MM#4 would require new facilities to be

installed and operational before use of existing facilities is disrupted. Any impacts associated with construction (e.g., air quality, biological resources, hydrology) have been accounted for with existing environmental analysis. With respect to hydrology, the project would maintain existing flow patterns, so new drainage facilities would result in only minor changes in flow routing. Change in drainage would not result in changes in groundwater. IAMFs HYD-IAMF#1, HYD-IAMF#3, and HYD-IAMF#4 would reduce impacts on water quality by requiring development of a storm water management and treatment plan (HYD-IAMF#1), Construction Stormwater Pollution Prevention Plan (HYD-IAMF#3), and Industrial Stormwater Pollution Prevention Plan (HYD-IAMF#4). These IAMFs would ensure that runoff does not degrade water quality. With implementation of AG-MM#4, access to agricultural drainage infrastructure would be continuous, and the impact would be less than significant.

Impact AG#5: Permanent Disruption of Agricultural Infrastructure Serving Important Farmland

All four project alternatives would have a significant indirect impact on Important Farmland as a result of permanent disruption of agricultural infrastructure serving Important Farmland. While IAMFs would avoid an impact related to disruption to or relocations of utilities, roads, and irrigation infrastructure, except for irrigation infrastructure at a site near Casa de Fruta (from Station 3148+60 to Station 3154), disruption to or relocation of agricultural drainage infrastructure could result in increased nutrient retention in soil, higher soil salinity, and standing water as a result of perched groundwater that could damage root systems. AG-MM#4 would require new facilities to be installed and operational before use of existing facilities is disrupted. Any impacts associated with construction (e.g., air quality, biological resources, hydrology) have been accounted for with existing environmental analysis. With respect to hydrology, the project would maintain existing flow patterns, so new drainage facilities would result in only minor changes in flow routing. Change in drainage would not result in changes in groundwater. IAMFs HYD-IAMF#1, HYD-IAMF#3, and HYD-IAMF#4 would reduce impacts on water quality by requiring development of a storm water management and treatment plan (HYD-IAMF#1), Construction Stormwater Pollution Prevention Plan (HYD-IAMF#3), and Industrial Stormwater Pollution Prevention Plan (HYD-IAMF#4). These IAMFs would ensure that runoff does not degrade water quality. With implementation of AG-MM#4, access to agricultural drainage infrastructure would be continuous, and the impact would be less than significant.

In addition, near Casa de Fruta (from Station 3148+60 to Station 3154) project design for all four alternatives involves an embankment, which could result in parcel-specific permanent disruption of irrigation infrastructure on Important Farmland under all four alternatives. AG-MM#5 would revise the project design between these locations, Station 3148+60 to Station 3154 as indicated on design plans) from embankment to viaduct, thus avoiding impacts on irrigation infrastructure. Any impacts associated with construction (e.g., air quality, biological resources) have been accounted for with existing environmental analysis. With implementation of AG-MM#5, agricultural irrigation infrastructure would not be disrupted at this location beyond the ability of IAMFs to avoid impacts, and the impact would be less than significant.