Attachment G

Draft Environmental Impact Report

Volume 1, Section 2

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and materials as native or low water use plants and low precipitation sprinkler heads, bubblers, drip irrigation systems, and timing devices.

- All existing hotels and motels must be retrofitted with showerheads with a maximum flow capacity of 2.5 gallons per minute.
- All existing residential structure must, at the time of change of ownership, be retrofitted with showerheads with a maximum flow capacity of 2.5 gallons per minute, ultra-low flush toilets or dual flush conversion kits. All existing commercial or residential structures must also make these retrofitting at the time of change of ownership or change of use.
- Indiscriminate running of water not otherwise prohibited above is not permitted if it is wasteful and without reasonable purpose.

This ordinance applies in all areas of the county subject to MCWRA's regulatory jurisdiction, including both incorporated and unincorporated areas and all water districts. However, the ordinance is not implemented in any city or water district that adopts and enforces its own regulations that are at least as restrictive as the regulations contained in this ordinance.

Agricultural Water Conservation Plans

Urgency Ordinance 3592, adopted by MCWRA in 1992, requires all growers in the Salinas Valley groundwater basin to develop a mandatory water conservation plan and to file that plan with MCWRA. The intent of the ordinance is to encourage water conservation as a means to reduce water demand and help reduce further overdraft. Growers farming property, any portion of which lies within MCWRA's Zone 2A, must submit a plan to MCWRA containing the following information:

- a description of the property, terrain, water usage and sources, and acreage under consideration;
- a description of their current farming methods and their impact on water use;
- a description of the changes that will be made in the current farming methods, crop selection and/or acreage cultivated;
- a description of alternative water conservation measures the grower considered and rejected, and a brief explanation of why they were rejected; and
- a schedule showing when each element of the water conservation plan will be implemented.

The ordinance encourages adoption of BMPs by requiring growers to select water-saving alternatives from a list developed by MCWRA. The recommended practices (e.g., use of moisture sensors, drip irrigation, nighttime irrigation, time clocks on pumps, tailwater return systems, and acreage set-asides) have been assigned point values. Growers must accumulate at least one point per acre of land. A fine may be assessed of $50 for each day of violation, for failure to

submit a plan. Enforcement actions may be taken through the District Attorney's office.

Water Data from Water Distribution Systems

Ordinance 3428 was adopted by MCWRA in 1989. It requires water distribution systems to implement water use management procedures and provide water use information to MCWRA. The purpose of the ordinance is "to facilitate and encourage water conservation in Monterey County by monitoring water use patterns and practices, through the collection and analysis of water use records and data." Water distribution systems covered by this ordinance include: (1) any system, regardless of ownership, that provides piped water for domestic use and has 50 or more service connections; and (2) industrial or commercial users that require more than 5 AFY, or that are not a service connection of a registered public water system.

Each system covered by the ordinance must register with MCWRA and provide information on the characteristics of the system and the types of water use records maintained. Each water distribution system must have or develop the capability to track monthly and annual cumulative water use and demand by use category, and must report each year to MCWRA the results of an annual water consumption audit. Water distribution systems in areas with defined allocation plans or in areas defined as having critical water supply problems may also be required to report usage by individual service connections. In areas with critical problems, MCWRA also may require periodic and cumulative water use data on the highest water users in each use category, and on customers identified by the Agency as apparently wasting water.

Water Wells

Chapter 15.08 of the County Code regulates the construction, repair, and reconstruction of all wells to prevent groundwater contamination and to ensure that water obtained from wells will be suitable for its intended purpose and will not jeopardize the health, safety, or welfare of the people of the County. It also regulates the destruction of wells found to be public nuisances, or when otherwise appropriate, to ensure that the wells will not cause pollution or contaminate groundwater.

Wells are regulated by the County Director of Environmental Health. A permit must be obtained from MCHD prior to the construction, repair, reconstruction, or destruction of any well, abandoned well, cathodic protection well, observation well, monitoring well, or test well. The applicants must meet the standards for these procedures set forth in DWR Bulletins 74-81 and 74-90. The ordinance also modifies the state standards in several areas, including: (1) the minimum allowable distance between wells and sewage leaching fields, septic tanks, and seepage pits; (2) requirements for sealing of the annular space surrounding the conductor casing of all wells; (3) restrictions on the discharge of drilling fluids; and (4) prevention of erosion caused by test pumping of wells. Well permits are subject to inspection.

All wells must be constructed and cased to prevent pollution, and all openings to the well must be sealed off to prevent pollution. A well is considered abandoned when it has not been used for a period of 1 year, unless the owner can meet various criteria demonstrating an intention to use the well again. Abandoned wells are destroyed by methods described in DWR Bulletins 74-81 and 74-90, with modifications as specified in the County Code to prevent the migration of water from one aquifer to another. Additional requirements are imposed on wells in the Prunedale area, requiring backflow prevention devices on all pumping equipment where fertilizers, fumigants, or pesticides are injected into the irrigation system.

In areas where groundwater quality problems are known to exist and where a well will penetrate more than one aquifer, the Health Officer requires special well seals to prevent the mixing of aquifers. In MCWRA's Zone 6 well construction is subject to the requirements found in the "Specifications for Wells in Zone 6," which are on file with MCHD and MCWRA. These Zone 6 requirements are designed to prevent the leakage of saltwater between aquifers.

Special Groundwater Protection areas have been established where contaminated groundwater is known to occur. These areas are subject to long-term remediation, with additional regulatory requirements associated with installation (or prohibition) of wells. Regulatory oversight is provided by MCHD. These areas include the following:

- Fort Ord, Special Ground Water Protection Zone and Consultation Zone, where contaminant plumes occur, is regulated in consultation with Fort Ord Base Realignment and Base Closure Team, including representatives of the U.S. Army, EPA, California Department of Toxic Substances Control, and Central Coast RWQCB;
- Monterey Peninsula Airport Prohibition Zone and Consultation Zone, where water well construction is prohibited, are subject to special review. Mapping for these areas is maintained by the USACE, and enforced by the Health Officer or other authority in accordance with the map on file in the MCHD.

Wastewater

Wastewater use and disposal is regulated in Chapter 15.16 of the County Code for all areas within MCWRA Zone 11. It allows for waste water from lavatories, bathtubs, showers, clothes washers and dishwashers to be collected for the purpose of flushing toilets and urinals and for the purpose of landscape irrigation subject to certain conditions.

Sewage disposal is regulated in Chapter 15.20 of the County Code, based on a Memorandum of Understanding with the Central Coast RWQCB signed in 1979. This chapter requires all buildings or structures where people reside, congregate, or are employed which are within 200 feet of an approved sanitary sewer to be connected to such sewer. Section 15.20.070 dictates particular standards and specifications for construction of a sewage disposal system, including septic tanks, leech fields, and seepage pits.

Chapters 15.21 and 15.22 prohibit discharge of sewage or hazardous materials into streams, with the finding that existing state and federal requirements are not sufficient to protect Monterey County's water resources. Chapter 15.22 prohibits any new pipes or conduits to carry discharges into county waters which contain any contaminant or cause any contamination or pollution. Sewage disposal must also be consistent with the Central Coast RWQCB Basin Plan and guidelines.

Title 20, the Zoning Code of the Monterey County Coastal Implementation Plan regulates land development in the coastal zone. Within this zone, wastewater disposal is regulated as part of the permit review process. Depending on the proposed action, an Administrative or Coastal Development Permit is required for a proposed development; and the method and adequacy of the disposal plan are subject to the review of the County's Director of Environmental Health. Development density is subject to adequate wastewater disposal capacity.

Groundwater Resources

Groundwater resources are required to be identified during review of subdivision maps in residential allocation zones, per Section 19.07.020 of the County Code. The ordinance requires submittals, including the following:

- Hydrogeologic environment shall include aquifer identification and characterization, groundwater basin delineation, well yields, and a characterization of soils.
- Groundwater levels and flow shall include a discussion of groundwater levels, a groundwater contour map, and a discussion of any seasonal and/or long-term fluctuations. This Section shall also include a discussion of the recharge areas and the amount of recharge shall be quantified using monthly time-step methodology. It shall also evaluate the impact of pumping on neighboring wells.
- Groundwater in storage shall be quantified by discussing the amount of groundwater in storage and the amount that can be recovered.
- Groundwater quality shall be discussed and any impacts on the groundwater by the proposed project shall be discussed and mitigation measures listed.

Other Ordinances

Several other ordinances related to water, which are not described here, are in Chapter 15 of the Monterey County Code. Chapter 15.20 outlines the sewage disposal ordinances regulating toilets, septic systems, and sewer lines. Chapter 15.21 describes the ordinance regulating discharge of sewage into streams, and Chapter 15.22 outlines the ordinance governing discharge of contaminants into County waters. All of these ordinances are enforced by the MCHD.

4.3.3.4 Other Local Plans and Programs

Monterey Bay National Marine Sanctuary Water Quality Protection Program Plans

The MBNMS is a federally protected marine area offshore of the central coast, encompassing 5,322 square miles of ocean and 276 miles of shoreline, from Marin County to San Luis Obispo County. One of 13 national marine sanctuaries administered by the National Oceanic and Atmospheric Administration (NOAA), the MBNMS was established for resource protection, research, education, and public use of this area.

In 1992, eight federal, state, and local agencies signed a memorandum of agreement with the MBNMS to develop collaboratively a Water Quality Protection Program (WQPP) for the MBNMS and its watersheds. The WQPP is now a partnership of 25 federal, state, and local agencies, as well as public and private groups. Four detailed plans have been completed as part of the WQPP: the *Urban Runoff Plan, Marinas and Boating Plan, Water Quality Monitoring Plan,* and *Agriculture and Rural Lands Plan*.

Urban Runoff Plan

The *Urban Runoff Plan* involves seven strategies for controlling nonpoint source runoff pollution: a collaborative effort to develop a regional stormwater management program; a regional education and outreach program; a voluntary technical training program for public works and planning staff; mapping and inspecting storm drains and outfalls; promoting the feasibility of catchment basins and vegetated buffer areas in reducing stormwater pollution; developing a sedimentation and erosion source control program; and developing a modified CEQA checklist to better address urban runoff.

Marinas and Boating Plan

The *Marinas and Boating Plan*, developed in collaboration with harbormasters, resource agencies, and the boating community, involves seven strategies for controlling harbor pollution: a public education and outreach program; a regional technical training program on pollution prevention for harbor and boatyard staff; facilitating the collection of contaminated bilge water and waste oil; promoting the use of containment methods to reduce waste runoff; encouraging the use of less toxic paint on boats and improvements in underwater hull cleanings; developing a pickup system for toxic materials at harbors; and developing a check-off sheet for harbormasters to assess current status and annual progress of pollution control efforts.

Water Quality Monitoring Plan

In an effort to integrate various monitoring programs and their reporting, the WQPP has coordinated with various public and private groups to develop a series of action plans that address the need for an integrated, comprehensive regional monitoring and reporting program. The WQPP's Action Plan II has been

completed and defines priority strategies for addressing monitoring and data sharing issues in the region. Strategies include those listed below.

- Regional monitoring, to coordinate and build on existing federal, state, and local monitoring activities within the MBNMS and its watersheds: Goals include development of a statewide monitoring program for ocean waters and coastal watersheds, and support of citizen monitoring groups (one such group is the Monterey Bay Sanctuary Citizen Watershed Monitoring Network, a network of volunteer monitoring groups, which actively monitor in the watersheds that drain to the MBNMS).
- Data access, to provide local, state, and federal agencies with easy access to existing database systems containing water quality and related information: The goal of this strategy is to provide readily understandable information to resource managers for evaluating environmental problems and making effective management decisions.
- Interagency coordination, to establish a framework for the continuous collaboration on water quality issues and watershed management, including funding priorities, education, technical assistance, monitoring and data exchange, permit review, and enforcement: One goal of the strategy is to establish a water quality coordinating council to ensure implementation of WQPP strategies and to address new problems as they arise.

Agriculture and Rural Lands Plan

The largest of the four plans, the *Agriculture and Rural Lands Plan* was developed in 1999 to address agricultural water quality issues related to runoff from over 4,000 square miles of agriculture and rural lands. It includes an agreement with the six-county Coalition of Central Coast County Farm Bureaus to establish industry-led networks to improve soil, nitrate, and pesticide management practices, with ongoing review and assistance from the WQPP. Initial implementation of this plan has included establishment of farmer-led erosion and nitrate control projects in five watersheds. The effort has generated substantial additional funding from the U.S. Department of Agriculture, the NRCS, the University of California Cooperative Extension, and local RCDs, to bring on a team of experts to help carry out the plan and conduct technical outreach to farmers on conservation measures.

The plan consists of 24 strategies to protect and enhance the quality of water draining into the MBNMS while sustaining the economic viability of agriculture. Primary strategies include: establishing an industry-led regional network to address nonpoint source management; improving technical information and outreach, through increased technical support from the NRCS and RCDs; improving education and public relations; streamlining the regulatory system of permitting; facilitating funding and economic incentives for management practices; and improving planning and maintenance of rural roadways and public lands, by distributing information on BMPs.

The plan resulted in the formation of an Agriculture Water Quality Alliance (AWQA), composed of representatives from the MBNMS, the Coalition of Central Coast County Farm Bureaus, the NRCS, RCDs, and the University of

California Cooperative Extension. The AWQA directs facilitation and coordination of strategy implementation by initiating projects, attracting additional resources, promoting partnerships with local and regional groups, tracking progress of plan implementation, and defining and measuring implementation success.

4.3.4 Project Impacts

This section describes the CEQA impact analysis relating to water resources for the proposed 2007 General Plan. It lists the thresholds used to conclude whether an impact would be significant. The section then provides a discussion of impacts and presents measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts.

4.3.4.1 Thresholds of Significance

Criteria for determining the significance of impacts related to water resources are based on criteria set forth in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.). Implementation of the 2007 General Plan would result in a significant impact on water resources if it would:

- violate any water quality standards or waste discharge requirements;
- otherwise substantially degrade water quality;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level and demand projected under the General Plan could not be met;
- exceed the capacity of existing water supplies and necessitate the acquisition of new supplies to meet expected demands;
- require new or expanded potable water facilities, or new or expanded water entitlements and resources;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

- require or result in construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would cause significant environmental effects;
- place housing within a 100-year flood hazard area as mapped on a federal Flood Boundary and Floodway Map or FIRM or other flood hazard delineation map;
- place within a 100-year flood hazard area structures that would impede or redirect flood flows; or
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding from the failure of a levee or dam.

Potential impacts of inundation by seiche, tsunami, or mudflow are discussed in Section 4.4, Geology, Soils, and Seismicity.

4.3.4.2 Impact Analysis

Potential impacts related to implementation of the proposed 2007 General Plan span a number of water resource–related issues and topical areas, including water quality and erosion, increased runoff and flooding, and various impacts resulting from groundwater overdraft.

Most of the growth associated with implementation of the 2007 General Plan would be centered in the Community Areas and Rural Centers. Therefore, the water resource impact analysis is focused in and around these areas. In addition, the *Carmel Valley Master Plan* area is analyzed because of the unique water-related constraints in that area.

Water Quality Degradation—Nonpoint Source Pollution from Urban Runoff

Impact WR-1: Residential, commercial, industrial, and public uses consistent with the 2007 General Plan would introduce additional nonpoint source pollutants to downstream surface waters, substantially degrading water quality. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Many of the major streams in Monterey County have been characterized as impaired and, at times, in violation of water quality standards listed in the *Central Coast Basin Plan* for one or more pollutants—mainly sediment, nutrients (nitrates), pathogens, and, in some areas, pesticides. While many of the pollutants that have impaired the County's water bodies can be attributed

to historical agricultural practices and land use practices, runoff from urban development in the incorporated cities and unincorporated county areas also contributes to water quality degradation. Continued impairment of water quality would potentially threaten or exceed adopted water quality standards and the beneficial uses of water bodies, as defined by the *Central Coast Basin Plan*. For some pollutants (e.g., nitrate in groundwater), state and federal water quality standards are already exceeded in certain areas of the county, especially in the Salinas Valley and Pajaro Valley area.

Development of residential, commercial, and industrial land uses, as well as public facilities (e.g., roads, schools, maintenance and corporation yards, water supply, and wastewater facilities) create additional impervious surfaces and generate additional automobile use. Several different types of pollutants (including sediment, organic compounds, nutrients, trace metals, bacteria and viruses, and oil and grease compounds) are common in runoff from these types of land uses. Sediment sources include roads and parking lots, as well as destabilized landscape areas, streambanks, unprotected slopes, and denuded or disturbed areas. (Water quality impacts related to soil erosion and sedimentation are discussed under Impact WR-2.) Organic compounds are derived from automotive fluids, pesticides, and herbicides. Nutrients include nitrogen, phosphorus, and other organic compounds that can be found in organic litter, fertilizers, food waste, sewage, and sediment. Sources of trace metals include motor vehicles, roofing and construction materials, and household chemicals. Animal wastes, sanitary sewer overflow, and trash handling areas can contribute bacteria and viruses. Sources of oil and grease compounds include motor vehicles, food service establishments, and fueling stations.

Increased growth in the Community Areas and Rural Centers allowed by the 2007 General Plan would increase urbanization and the conversion of vacant open lands to areas with increased impervious surface area. Because the 2007 General Plan employs a primarily "existing community area"–centered growth strategy, with growth concentrated in areas surrounding existing incorporated cities and unincorporated town areas, its implementation would result in an increase in urban-type development in these areas. Proposed development of the Chualar Community Area (planned for later in the General Plan update period) would more than double the existing combined residential, commercial, and industrial land use acreage in the area. The Boronda and Pajaro Community Areas would see increases of more than 70% in combined commercial and industrial land use acreage. In addition to these Community Areas, growth allowed by the 2007 General Plan would result in some increase in residential, commercial, industrial, and public uses that would take place in more rural areas (Rural Centers) and on existing lots of record.

Such urban development would result in an increase in pollutants associated with runoff, as described above. Therefore, the water quality of streams and other surface features within or adjacent to the Community Areas would likely be further degraded by urban land use activities. In general, the coastal

communities and smaller isolated rural communities would be expected to experience the least amount of population increase. Therefore, the majority of coastal streams would experience relatively less adverse changes to water quality resulting from implementation of the 2007 General Plan. However, surface water features in the central, more urbanized Salinas Valley may experience continued loading of pollutants from urban runoff.

As described above under "Regulatory Setting," the NPDES Phase II stormwater permitting programs regulate MS4s, industrial facilities, and construction sites. Under the NPDES permitting program, preparation and implementation of SWPPPs are required for construction activities involving more than 1 acre. Project applicants (typically for larger commercial and industrial projects) also may be required to develop a long-term SWPPP or a long-term Stormwater Management Program (SWMP) to cover potential long-term stormwater pollution associated with site development after construction. Compliance with the NPDES program would minimize water quality degradation, particularly during construction activities.

2007 General Plan Policies

The 2007 General Plan policies summarized below establish comprehensive measures to avoid and minimize adverse impacts on water quality. The Conservation and Open Space, Safety, and Public Services Elements of the General Plan contain specific goals and policies addressing water quality issues related to land use.

Conservation and Open Space Element

Conservation and Open Space Element Goal OS-3 (soil conservation and water quality) outlines measures to prevent soil erosion in order to conserve soils and enhance water quality.

Conservation and Open Space Element Policy OS-3.1(BMPs) requires development and enforcement of BMPs to prevent and repair erosion damage.

Conservation and Open Space Element Policy OS-3.2 (restoration programs) requires that existing special district, state, and federal soil conservation and restoration programs be supported. In addition, voluntary restoration projects initiated by landholders, or stakeholder groups including all affected landowners, will be encouraged.

Conservation and Open Space Element Policy OS-3.3 (runoff studies) establishes criteria for hydrology studies to evaluate and address geologic and hydrologic constraints and hazards conditions associated with increased runoff from new development and changes in land use designations. These studies would evaluate geologic and hydrologic constraints such as slope and soil instability, erosion hazards, drainage, water quality, and stream stability problems

created by increased stormwater runoff for new development and changes in land use designations.

Conservation and Open Space Element Policy OS-3.4 (GIS mapping) requires that those areas where slopes pose severe constraints for development be mapped in the County's GIS system, and maps should be updated every five years. This will ensure that potential release of erosion to an impaired water body can be avoided through project design.

Conservation and Open Space Element Policy OS-3.5 (slope development) and OS-3.6 (clustering) prohibits development on slopes in excess of 30% and mandates that a permit process be established to address development on slopes greater than 25%. This new permit process would be established in part to identify development and design techniques for erosion control, slope stabilization, visual mitigation, drainage, and construction techniques.

Conservation and Open Space Element Policy OS-3.7 (coordinated resources management planning [CRMP]) encourages the voluntary preparation and implementation of a CRMP in watersheds that have state-designated impaired water bodies.

Conservation and Open Space Element Policy OS-3.8 (technical assistance) calls for the County to cooperate with appropriate federal, state, and local agencies to provide public education/outreach and technical assistance programs regarding erosion and sediment control, efficient water use, water conservation and re-use, and groundwater management. This cooperative effort shall be coordinated with MCWRA.

Conservation and Open Space Element Policy OS-3.9 (cumulative hydrologic impacts) requires the County to develop a program that would address the potential cumulative hydrologic impacts of the conversion of hillside rangeland areas to cultivated croplands. This program would be designed to address offsite soil erosion, increased runoff-related stream stability impacts, and/or potential violation of adopted water quality standards. The County would convene a committee comprised of County staff, technical experts, and stakeholders to develop the program, including implementation recommendations.

Conservation and Open Space Goal OS-4 (marine and river resources) establishes the protection and conservation of coastal, marine, and river environments (as applied in areas not in the coastal zone).

Conservation and Open Space Element Policy OS-4.2 (discharges) mandates that direct and indirect discharge~~s~~ of harmful substances into marine waters, rivers, or streams shall not exceed state or federal standards.

Safety Element

Safety Element Policy S-1.2 (geologic constraints GIS) requires that the County develop and maintain a Geologic Constraints and Hazards Database in the County GIS. The GIS would be used to identify areas containing hazards and constraints (see *Policy PS-2.6*) that could potentially impact the type or level of development allowed in these areas (see *Policy OS-3.5*). Maps maintained as part of the GIS include: Steep Slope Constraints (see *Policy OS-3.5*), Coastal Erosion, Moderate and High Erosion Hazards, and Highly Erodible Soils. This will ensure that potential release of erosion to an impaired water body can be avoided through project design.

Safety Element Policy S-3.2 (BMPs) require that BMPs be incorporated into all new development to protect surface water and groundwater quality.

Safety Element Policy S-3.6 (GIS inventory) requires that the County conduct an inventory of areas where there is a high probability of accelerated erosion, sedimentation, and/or chemical pollution. This inventory would be maintained as part of the County's GIS mapping database.

Public Services Element

Public Services Element Policy PS-2.5 (water quality testing) proposes regulations for water quality testing of new individual wells.

Public Services Element Policy PS-2.6 (GIS database) calls for a Hydrologic Resources Constraints and Hazards Database to be developed and maintained in the County GIS. The GIS shall be used to identify areas containing hazards and constraints (see Policy S-1.2) that could potentially impact the type or level of development allowed in these areas (see Policy OS-3.5). Maps maintained as part of the GIS would include: impaired water bodies on the State Water Resources Control Board 303d list, important groundwater recharge areas, 100-year flood hazards, hard rock areas with constrained groundwater, and areas of septic tank leachfield unsuitability.

Public Services Element Policy PS-2.7 (conservation strategy) states that, as part of an overall conservation strategy and to improve water quality, Area Plans may include incentive programs that encourage owners to voluntarily take cultivated lands on slopes with highly erosive soils out of production.

Area Plan Policies

The following Area Plan supplemental policies also support water quality protection related to residential, commercial, industrial, and public use development.

North County Area Plan

North County Area Plan Policy NC-5.3 states that cooperative soil conservation, water quality protection, and resource restoration programs within watershed basins shared with neighboring counties shall be pursued.

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-1.5 (Salinas River corridor) permits development of commercial land uses near Highway 68 and the Salinas River only if they will not further deteriorate Salinas River water quality. In addition, where feasible, these projects should also enhance the riparian habitat along the Salinas River.

Greater Salinas Area Plan Policy GS-1.8 (Spreckels development) permits development of land near the town of Spreckels designated as industrial to also be developed as agricultural-related commercial uses. However, such agriculturally related development must not deteriorate water quality in the Salinas River or area groundwater. In addition, where feasible, it should be designed to protect and enhance the riparian corridor along the Salinas River.

Greater Salinas Area Plan Policy GS-3.1 (erosion) mandates that all vegetation on land exceeding 25% slope, particularly chaparral and broad leaf evergreen, should remain undisturbed to minimize erosion and retain important visual amenities.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policy CSV-1.2 (development plans) stipulates that all recreation and visitor-serving commercial land uses shall require a use permit. If such uses are on a 10-acre or greater parcel, a comprehensive development plan that addresses hydrology, water quantity and quality, sewage disposal, fire safety, access, drainage, soils, and geology shall be required.

Central Salinas Valley Area Plan Policy CSV-5.2 (recreation development) limits recreation and visitor-serving commercial uses to areas where they will not adversely affect groundwater supply, quality, or recharge.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Area Plan does not contain any pertinent supplemental policies.

Carmel Valley Master Plan

Carmel Valley Master Plan CV-2.9 (slope development) prohibits roads crossing slopes steeper than 30% unless factors of erosion can be mitigated.

Carmel Valley Master Plan CV-5.6 (containment) requires containment structures or other measures to control the runoff of pollutants from commercial areas or other sites where chemical storage or accidental chemical spillage is possible.

Toro Area Plan

The Toro Area Plan does not contain any pertinent supplemental policies.

Cachagua Area Plan

The Cachagua Area Plan does not contain any pertinent supplemental policies.

South County Area Plan

South County Area Plan Policy SC-5.2 establishes that cooperative soil conservation, water quality protection, and resource restoration programs within watershed basins shared with neighboring counties shall be pursued.

Agricultural Winery Corridor Plan (AWCP)

The AWCP does not contain any pertinent supplemental policies.

Fort Ord Master Plan

Fort Ord Master Plan Hydrology and Water Quality Objective C mandates the control of nonpoint and point water pollution sources to protect the adopted beneficial uses of water.

Fort Ord Master Plan Hydrology and Water Quality Policy C-1 (water quality programs) requires the County to comply with all current mandated water quality programs and to establish new local programs, such as Program C-1.4, as needed. Program C-1.4 (water quality monitoring program) requires development of a surface- and groundwater water quality monitoring program.

Fort Ord Master Plan, Hydrology and Water Quality Policy C-2 (onsite drainage systems) requires all new development to demonstrate that onsite drainage systems are designed to capture and filter urban pollution to the maximum extent feasible. Biological Resources Policies A-5, A-8, and B-2 of the *Fort Ord Master Plan* require new development near habitat management areas (including the Frog Pond Natural Area) and other wetland areas to incorporate measures to protect these areas from water quality impacts.

Significance Determination

Adoption and implementation of the proposed policies and programs in the 2007 General Plan—combined with the current local, state, and federal stormwater, grading, and erosion control regulations described earlier—would ensure that water quality impacts resulting from nonpoint source pollution runoff related to residential, commercial, industrial, and public uses consistent with the 2007 General Plan would be reduced to a less-than-significant level.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies would reduce impacts on water quality associated with nonpoint source runoff from increased development to a less-than-significant level. No mitigation is required.

Mitigation is proposed to adopt and implement a Stream Setback Ordinance. While not necessary to address significant water quality impacts, this measure will help to further reduce water quality impacts.

Mitigation Measure BIO-2.1: Stream Setback Ordinance

The County shall develop and adopt a county-wide Stream Setback Ordinance to establish minimum standards for the avoidance and setbacks for new development relative to streams. The ordinance shall identify standardized inventory methodologies and mapping requirements. A stream classification system shall be identified to distinguish between different stream types (based on hydrology, vegetation, and slope, etc.) and thus allow application of standard setbacks to different stream types. The ordinance shall identify specific setbacks relative to the following rivers and creeks so they can be implemented in the Area Plans: Salinas, Carmel River, Arroyo Seco, Pajaro River, Nacimiento, San Antonio, Gabilan Creek, and Toro Creek. The ordinance may identify specific setbacks for other creeks or may apply generic setbacks based on the stream classification developed for the ordinance. The purpose of the ordinance will be to preserve riparian habitat and reduce sediment and other water quality impacts of new development.

The Stream Setback Ordinance shall apply to all discretionary development within the county and to conversion of previously uncultivated agricultural land (as defined in the General Policy Glossary) on normal soil slopes over 15% or on highly erodible soils on slopes over 10%.

Significance Conclusion

The 2007 General Plan would have a less-than-significant impact.

Buildout

Impact of Development with Policies

Buildout would result in a more extensive development pattern than currently exists. Assuming that future development follows the basic spirit of the 2007 General Plan policies, most urban development would be focused in the cities, Community Areas, and Rural Centers. However, because the buildout scenario assumes that existing lots of record would be developed with a single-family residence, there would be substantial low-density development spread across the county. This would increase the potential for nonpoint source pollution resulting from scattered, individual development sites.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent as today. Federal regulations, including the state-administered TMDL program, have grown increasingly stringent since the enactment of the CWA and Porter-Cologne. Assuming that this trend continues, with most development centered on population centers, these policies and regulations will be effective in avoiding nonpoint source pollution from urban runoff. Development on individual lots presumably would be subject to the same or more stringent regulations than today. This would include future generations of the County's grading and erosion control ordinances, revised to meet more stringent federal and state water quality regulations.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies, as well as future regulations, would reduce impacts on water quality associated with nonpoint source runoff from increased development to a less-than-significant level. No mitigation is required.

Significance Conclusion

Future urban runoff impacts would not be substantially greater than the impact associated with the 2030 planning horizon as a result of the

application of federal, state, and county water quality regulations. This impact would be less than significant, and no mitigation is required.

Water Quality Degradation—Construction-Related Soil Erosion and Sedimentation

Impact WR-2: Land uses and development consistent with the 2007 General Plan would result in increased soil erosion and sedimentation during construction activities, substantially degrading water quality in downstream waterways. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan would result in the construction of a wide range of uses, including residential, commercial, and industrial buildings; public facilities; and agricultural-related uses (e.g., processing, support, and visitor-serving uses) among others. Erosion and sedimentation resulting from construction activities in the unincorporated parts of Monterey County would represent a significant source of particulate pollution conveyed in stormwater runoff. Grading and other earthmoving activities would alter drainage patterns and therefore have the potential to accelerate soil erosion well above natural background rates. Vegetative cover, which acts to stabilize the soil, generally would be removed from areas where earthwork and grading activities would occur during construction.

Although the construction of most new development would occur on relatively gentle slopes surrounding Community Areas and Rural Centers, the 2007 General Plan allows development on hillside areas with moderate to high erosion hazards, especially in the Fort Ord Community Area. Slope limitations are imposed on hillside development and vary somewhat between planning areas and Community Areas. Generally, existing County development regulations require the preparation and implementation of erosion control plans for residential and commercial/industrial development in Community Areas and Rural Centers.

Even with the implementation of erosion control measures, development on moderate slopes (slopes between 15 and 25%) or on highly erosive soils is particularly susceptible to increased erosion and sedimentation, which has the potential to impair water quality. A high level of attention to the planning and implementation of erosion control measures would be required in these areas. Sediment also would accumulate at the inlets of downstream storm drain systems, reducing the system's capacity to convey stormwater. Soil loss from erosion would generate costs to the public associated with the cleanup and maintenance of storm drains, culverts, and open roadside ditches.

As previously discussed, Chapter 16.12 of the Monterey County Code provides erosion control measures, including prohibiting development on slopes greater than 30%, and requirements for erosion control plans, control of runoff, avoiding creek disturbance, land clearing, and wet-weather grading activities.

2007 General Plan Policies

Impacts resulting from development consistent with the 2007 General Plan would be reduced by compliance with the existing County grading and erosion control requirements and by the Phase II NPDES permitting requirements, mandating the preparation and implementation of SWPPPs. In addition, the Conservation and Open Space, Safety, and Public Services Elements of the 2007 General Plan contain goals and policies addressing water quality issues related to erosion and sedimentation.

Conservation and Open Space Element

Goal OS-3 and Policies OS-3.1 through OS-3.9 establish guidelines for erosion prevention.

Conservation and Open Space Element Policy OS-3.1 (erosion) states that Best Management Practices (s) to prevent and repair erosion damage shall be established and enforced.

Conservation and Open Space Element Policy OS-3.2 (erosion and public outreach) requires that existing special district, state, and federal soil conservation and restoration programs shall be supported. Voluntary restoration projects initiated by landholders, or stakeholder groups including all affected landowners, shall be encouraged.

Conservation and Open Space Element Policy OS-3.3 (erosion) ensures that criteria for studies to evaluate and address through appropriate designs and BMPs geologic and hydrologic constraints and hazards conditions such as slope and soil instability, moderate and high erosion hazards, and drainage, water quality and stream stability problems created by increased stormwater runoff shall be established for new development and changes in land use designations.

Conservation and Open Space Element Policy OS-3.4 (erosion and GIS) establishes that those areas where slopes pose severe constraints for development shall be mapped in the County's GIS. The information shall be updated at least every five (5) years.

Conservation and Open Space Element Policy OS-3.5 (erosion/slopes) requires that the County shall prohibit development

on slopes greater than 30%. It is the general policy of the County to require dedication of scenic easement on a slope of 30% or greater. Upon application, an exception to allow development on slopes of 30% or greater may be granted at a noticed public hearing by the approving authority for discretionary permits or by the Planning Commission for building and grading permits. The exception may be granted if one or both of the following findings are made, based upon substantial evidence:

A) there is no alternative which would allow development to occur on slopes of less than 30%; or,

B) the proposed development better achieves the resource protection objectives and policies contained in the Monterey County General Plan, accompanying Area Plans and Land Use Plans, and all applicable master plans.

A permit process will be established as follows:

1. A discretionary permit process for development on slopes greater than 25% or that contain geologic hazards and constraints shown on the County's GIS Geologic (*Policy S-1.2*) or Hydrologic (*Policy PS-2.7*) Hazard Databases shall be established. The process shall be designed to:

    a. Evaluate possible building site alternatives that better meet the goals and policies of the general plan.

    b. Identify development and design techniques for erosion control, slope stabilization, visual mitigation, drainage, and construction techniques.

    c. Minimize development in areas where potentially unstable slopes, soil and geologic conditions, or sewage disposal pose substantial risk to public health or safety.

    2. The County shall develop and implement an Agricultural Permit process for the conversion, for agricultural purposes, of previously uncultivated lands on slopes in excess of 25-percent (25%). An Agricultural Permit shall recognize unique grading criteria for agricultural purposes and the process shall include criteria when a discretionary permit is required. Projects that are subject to a State Agricultural Waiver Program, Agricultural Registration Program, or other similar program that regulates irrigation of agricultural land on steep slopes or projects where only a small portion of the affected area has slopes in conflict with this policy shall be allowed with a ministerial permit that requires compliance with the criteria developed for the following resource areas:

        a. Water Quality/Water Supply

        b. Biological Resources

        c. Cultural Resources

d. Erosion Control

e. Drainage

f. Flood Hazards

3. A ministerial permit process shall be developed and implemented for proposed development, including for purposes of this policy conversion of previously uncultivated lands, on slopes between 15- and 24-percent (15–24%), and 10- to 15-percent (10–15%) on highly erodible soils.

4. The permit processes shall be designed to require that an erosion control plan be developed and implemented that addresses slope stabilization, and drainage and flood hazards.

5. All Routine and Ongoing Agricultural Activities, except for conversion of previously uncultivated lands as described in this policy above, are exempt from the above permit requirements.

Conservation and Open Space Element Policy OS-3.6 (erosion) states that except in Community Areas where Community Plans or Specific Plans are adopted (Policy LU-10.4), areas designated as medium density residential or high density residential, or in areas designated as commercial or industrial where residential use may be allowed, a formula based on slope shall be established to calculate the maximum possible residential density for individual parcels. Clustering is encouraged as a technique to avoid development on slopes over 25%. Where an entire parcel would not be developable because of plan policies, an extremely low density of development or single-family home will be allowed, as appropriate.

Conservation and Open Space Element Policy OS-3.7 (water quality) ensures that voluntary preparation and implementation of a coordinated resources management plan shall be encouraged in watersheds of state-designated impaired waterways.

Conservation and Open Space Element Policy OS-3.8 (erosion and water quality public outreach) requires that the County shall cooperate with appropriate regional, state, and federal agencies to provide public education/outreach and technical assistance programs on erosion and sediment control, efficient water use, water conservation and re-use, and groundwater management. This cooperative effort shall be centered through the Monterey County Water Resources Agency.

Conservation and Open Space Element Policy OS-3.9 (erosion and water quality) establishes that the County will develop a program that will address the potential cumulative hydrologic impacts of the conversion of hillside rangeland areas to cultivated croplands. The

program will be designed to address offsite soil erosion, increased runoff-related stream stability impacts, and/or potential violation of adopted water quality standards. The County should convene a committee comprised of County staff, technical experts, and stakeholders to develop the Program, including implementation recommendations.

Safety Element

Safety Element Policy S-1.7 (erosion) requires development of a geologic constraints and hazards database in the County's GIS, including maps of erosion and sedimentation problem areas.

Safety Element Policy S-3.2 (groundwater and surface water quality and BMPs) states that Best Management Practices to protect groundwater and surface water quality shall be incorporated into all development.

Safety Element Policy S-3.7 (stormwater, erosion, and flood hazards) states that the Monterey County Water Resources Agency shall prepare a Flood Criteria or Drainage Design Manual that established flood plain management policies, drainage standards and criteria, stormwater detention, and erosion control and stormwater quality protection measures in order to prevent significant impacts from flooding and ensure that development does not increase flooding risk over present conditions. The manual will include, as appropriate, hydrologic and hydraulic analysis procedures, procedures to assess stream geomorphology and stability, potential development impacts on streams, and design guidelines for channel design, including biotechnical bank stabilization. Until the Drainage Design Manual is prepared, the County shall continue to apply existing policies and ordinances to manage floodplains and minimize flood risk, erosion control and water quality impacts.

Area Plan Policies

Several Area Plan supplemental policies support water quality protection related to construction impacts on soil erosion and sedimentation.

Central Salinas Valley Area Plan

Policies CSV-1.1 and CSV-1.2 in the Central Salinas Valley Area Plan require certain recreation and commercial land use development projects to complete development plans to address soil stability and water quality.

Greater Monterey Peninsula Area Plan

There are no policies related to construction-related soil erosion and sedimentation in the Greater Monterey Peninsula Area Plan.

Carmel Valley Master Plan

Carmel Valley Master Plan Policy CV-4.1 (erosion, construction, and stormwater runoff) explains that in order to reduce potential erosion or rapid runoff:

- The amount of land cleared at any one time shall be limited to the area that can be developed during one construction season.
- Motorized vehicles shall be prohibited on the banks or in the bed of the Carmel River, except by permit from the Water Management District or Monterey County.
- Native vegetative cover must be maintained on areas that have the following combination of soils and slope:
  - Santa Lucia shaly clay loam, 30–50% slope (SfF)
  - Santa Lucia-Reliz Association, 30–75% slope (Sg)
  - Cieneba fine gravelly sandy loam, 30–70% slope (CcG)
  - San Andreas fine sandy loam, 30–75% slope (ScG)
  - Sheridan coarse sandy loam, 30–75% slope (SoG)
  - Junipero-Sur complex, 50–85% slope (Jc)

Policy CV-3.4 of the Carmel Valley Master Plan includes requirements for minimizing grading, cutting, and filling for hillside development; and Policy CV-1.20 requires design review of new development to consider erosion and grading.

Toro Area Plan

Toro Area Plan Policy T-4.1 prohibits land uses that may contribute to siltation of Toro Creek.

Cachagua Area Plan

Policy CACH-4.1 requires design of commercial mining and timber resource production operations to protect against additional erosion and sedimentation.

South County Area Plan

There are no policies related to construction-related soil erosion and sedimentation in the South County Area Plan.

Agricultural Winery Corridor Plan

There are no policies related to construction-related soil erosion and sedimentation in the Agricultural Winery Corridor Plan.

Community Area Policies

Fort Ord Master Plan

Several policies in the Fort Ord Master Plan address erosion protection. Soils and Geology Policy A-1 requires the use of the NRCS soil survey of Monterey County to determine soil suitability for particular land uses (where more specific site information is unavailable). Soils and Geology Policy A-2 requires developers to prepare and implement erosion control and landscape plans, at a minimum meeting the requirements of SWPPPs required by the State Water Board; programs under this policy require the County to provide lists of erosion control measures by soil type, recommended native plant species for erosion control, and engineering/design techniques addressing Fort Ord soil limitations. Soils and Geology Policy A-3 requires the County to ensure implementation of developer erosion control measures through site monitoring, Soils and Geology Policy A-4 requires the County to continue to enforce the Uniform Building Code to minimize erosion and slope instability problems, and Soils and Geology Policy A-5 requires developers to prepare geotechnical reports in areas with slope and soil limitations. Soils and Geology Policy A-6 requires erosion control measures for development on slopes greater than 25%, with the County mapping areas with slope constraints and designating areas with extreme slope constraints for open space uses if adequate erosion control design measures cannot be implemented. In addition, Hydrology and Water Quality Policy C-4 requires the County to help prevent waterway siltation through developing BMPs for property owners near waterways. Finally, Biological Resources Policies A-4 and A-5 require erosion control measures to protect certain habitat areas.

Significance Determination

As discussed above, existing County, state, and federal requirements; proposed policies of the 2007 General Plan; and existing central coast RWQCB regulatory initiatives, such as the WMI, NPDES Phase II stormwater, and TMDL programs, would substantially reduce the extent of erosion and sedimentation from most construction activities on gentle slopes and where an erosion control plan is required. Additionally, establishment of permits for development on steeper slopes, including an agricultural conversion permit process, in part to identify development and design techniques for erosion control and slope stabilization, would further reduce potential erosion and sedimentation impacts from 2007 General Plan implementation.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies would reduce impacts on water quality associated with erosion and sedimentation to a less-than-significant level. No mitigation is required.

Significance Conclusion

Full application of all of existing requirements and the 2007 General Plan policies would reduce this impact to a less-than-significant level.

Buildout

Impact of Development with Policies

Buildout would result in a more extensive development pattern than currently exists. Assuming that future development follows the basic spirit of the 2007 General Plan policies, most urban development would be focused in the cities, Community Areas, and Rural Centers. However, because the buildout scenario assumes that existing lots of record would be developed with a single-family residence, there would be substantial low-density development spread across the county. This would increase the potential for erosion and sedimentation resulting from construction at scattered, individual development sites.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent then as they are today. With most development centered around population centers, these policies and regulations will be effective in avoiding construction impacts. Federal and state requirements for control of erosion and sedimentation from construction, founded in the CWA and Porter-Cologne, continue to grow more stringent as time passes. Assuming that this trend continues, construction on individual lots by buildout in 2092 would presumably be subject to more stringent regulations than today, including new generation erosion control and grading ordinances. Therefore, although low-density development would be more expansive than is the case at this time, future construction-related impacts would not be substantially greater than the impact associated with the 2030 planning horizon.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies would reduce impacts on water quality associated with construction-related erosion and sedimentation to a less-than-significant level. No mitigation is required.

Significance Conclusion

Impacts would be less-than-significant.

Impact WR-3: Agricultural and resource development (i.e., limited timber harvesting and mineral resources extraction) land uses consistent with the 2007 General Plan would increase sediment and nutrients in downstream waterways and violate water quality standards. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Agricultural production and, to a lesser extent, commercial timber harvesting and mineral resources extraction are economically important land use activities in Monterey County. Some agricultural practices, resource development, and associated land uses historically have impaired water quality and, on occasion, have contributed to the violation of water quality standards in the county. Such practices and land use activities include hay farming and grazing, fruit and vegetable production, vineyard planting, some timber and hardwood harvesting (especially associated with land conversion), quarrying, and sand and gravel extraction.

Such agricultural land uses consistent with the 2007 General Plan would potentially be a significant source of soil erosion and sedimentation of downstream waterways, especially when such land use activities occur on moderate to steep slopes or on highly erodible soils. These land use activities also would be sources of nutrients and contaminants from the application of agro-chemicals used in agricultural operations (e.g., fertilizers and pesticides) containing nitrogen and phosphorous in agricultural runoff. In particular, vineyard planting in the South County area on slopes and possibly new cultivated crops on currently unfarmed sloping lands on the margins of the Salinas Valley, and in the North County and Elkhorn Slough watershed, may create water quality impairments. Expanding vineyards onto currently unfarmed steep slopes would potentially result in erosion because of the challenges in developing and implementing successful soil erosion and sediment control plans on these slopes.

Very few agricultural land uses require discretionary or ministerial permits from the County. The most common agricultural practices and land uses consistent with the 2007 General Plan that would contribute to sediment deposition and nutrient/pesticide contamination of surface water bodies likely would include hillside rangeland and timberland (including oak woodland) conversions to agricultural cultivation, such as vineyards, and conversion of pasture and hay lands to cultivated crops.

Hydrologic changes, such as increased runoff from agricultural land conversions (rangeland conversion) on moderate to steep slopes, also would

affect stream geomorphology and stream stability (e.g., accelerate streambank and streambed erosion or sediment accumulation), particularly if several large conversion projects occurred within the same watershed over a short period of time. Cumulative hydrologic changes would be greatest when large portions of forested, oak woodland, or brushland-dominated watersheds would be converted to cultivated crops or vineyards. Changes in peak runoff rates that modify the 2-year channel-shaping flow and changes in sediment supply (e.g., due to changes in land use activities) would further contribute to watershed instability. These hydrologic effects are often additive in watersheds with a prior history of disturbance from rural development and intensive agricultural land uses, especially in watersheds with a high percentage of hillside agricultural cultivation (e.g., the upland portions of south Monterey County).

Future vineyard plantings, which may be an indirect result of the AWCP, would potentially be a significant source of soil erosion and sedimentation of downstream waterways, especially when such land use activities occur on moderate to steep slopes or on highly erodible soils. These land use activities also would be sources of nutrients and contaminants from the application of agro-chemicals used in agricultural operations (e.g., fertilizers and pesticides) containing nitrogen and phosphorous in agricultural runoff. As discussed above, hydrologic changes, such as increased runoff from agricultural land conversions on moderate to steep slopes, would substantially affect stream geomorphology and stream stability (e.g., accelerate streambank and streambed erosion or sediment accumulation), particularly if several large conversion projects occurred in the same watershed over a short period.

2007 General Plan Policies

The County does not regulate agricultural cultivation in most areas; currently, uncultivated land conversion is regulated only in the Elkhorn Slough (North County coastal) area. However, new cultivation on slopes greater than 30% is subject to a grading permit with associated conditions, such as development and implementation of erosion control plans. The County also relies on the educational outreach programs of other agencies, such as the University of California Cooperative Extension and the Resource Conservation District for information and dissemination of agricultural BMPs, as well as on the programs administered by the U.S. Department of Agriculture (USDA) and the Central Coast RWQCB (e.g., the TMDL program and the conditional waiver for irrigated agriculture).

Agricultural Element

Goal AG-3 and its policies exempt routine and ongoing activities from many County permit requirements that would otherwise be interpreted as applicable, except for activities that create significant soil erosion impacts or violate adopted water quality standards.

Conservation and Open Space Element

Policy OS-3.5 mandates establishment of an agricultural conversion permit process, in part to identify development and design techniques for erosion control, slope stabilization, visual mitigation, drainage, and construction techniques.

Policy OS-3.8 directs the County to cooperate with regional, state, and federal agencies to provide public outreach on erosion and sediment control, efficient water use, water conservation and reuse, and groundwater management.

Safety Element

Safety Element Policy S-3.1 (flood hazards and stormwater) limits post-development, offsite peak flow drainage from the area being developed to not be greater than pre-development peak flow drainage. Onsite improvements or other methods for stormwater detention shall be required to maintain post-development, offsite, peak flows at predevelopment levels, where appropriate, as determined by the Monterey County Water Resources Agency.

Safety Element Policy S-3.2 (groundwater and surface water quality and BMPs) states that Best Management Practices to protect groundwater and surface water quality shall be incorporated into all development.

Safety Element Policy S-3.3 (stormwater and new development) establishes that drainage facilities to mitigate the post-development peak flow impact of new development shall be installed concurrent with new development.

Safety Element Policy S-3.6 (flood hazards, erosion, and GIS) requires that an inventory of areas where there is a high probability of accelerated erosion, sedimentation, and/or chemical pollution shall be maintained as part of the County's GIS mapping database.

Public Services Element

Policy PS-2.7 allows Area Plans to include incentive programs to take cultivated lands on slopes with highly erosive soils out of production voluntarily.

Area Plan Policies

The following Area Plan supplemental policies also support water quality protection related to agricultural and resource production development.

Carmel Valley Master Plan

Carmel Valley Master Plan Policy CV-6.2 also helps to mitigate water quality impacts associated with erosion by discouraging agricultural development on slopes greater than 25%.

Cachagua Area Plan

Policy CACH-4.1 in the Cachagua Area Plan addresses potential sedimentation impacts related to mining or commercial timber production.

Community Area Policies

Fort Ord Master Plan

In the Fort Ord Master Plan, Soils and Geology Policy B-1 requires identification and protection of valuable mineral resources in Fort Ord. Soils and Geology Policy B-3 requires the preparation of mining and reclamation plans prior to granting permits for mineral extraction operations, with a requirement for the County to develop a list of issues to be mitigated in these plans—including erosion control, protection of water quality, waste disposal, and reclamation.

Hydrology and Water Quality Program C-1.1 (coastal/marine and nonpoint source water pollution) establishes that the County shall comply with the nonpoint pollution control plan developed by the California Coastal Commission and the SWRCB, pursuant to Section 6217 of the Federal Coastal Zone Management Act Reauthorization Amendments of 1990, if any stormwater is discharged into the ocean.

Hydrology and Water Quality Program C-1.2 (nonpoint source water pollution) ensures that the County shall comply with the General Industrial Storm Water Permit adopted by the SWRCB in November 1991 that requires all storm drain outfalls classified as industrial to apply for a permit for discharge.

Hydrology and Water Quality Program C-1.5 (BMPs and new development) establishes that the County shall adopt and enforce a hazardous substance control ordinance that requires that hazardous substance control plans be prepared and implemented for construction activities involving the handling, storing, transport, or disposal of hazardous waste materials.

Biological Resources Program A-5.3 (stormwater drainage plans) requires that the County shall require stormwater drainage plans for all developments adjacent to the habitat management areas to

incorporate measures for minimizing the potential for erosion in the habitat management areas due to stormwater runoff.

State and Federal Regulations

To the extent that the 2007 General Plan would partially exempt certain kinds of agricultural uses from County permit requirements, state and federal water quality programs (such as the TMDL program and the Conditional Waiver for Irrigated Agriculture) would nonetheless apply to avoid agriculturally related water quality problems.

Timber operations are primarily addressed at the state level through the Timber Harvesting Program (THP) review program. Conservation and open space Element Policy OS-5.7 requires proposals for harvesting or converting commercially valuable timber to include the filing of a THP that contains provisions for erosion control. Monterey County has special rules for timber harvesting operations under the California Forest Practice Rules (Title 14, California Code of Regulations, Chapter 4, 4.5, and 10) enacted by the California Department of Forestry and Fire Protection. These include limits on the construction of new roads, restrictions on harvesting in the Big Sur area, and maintenance of erosion control structures (14 CCR Sections 965.4, 965.6, and 965.9). Monterey County has also supplemented the permit review process for THPs to address important local issues through its County code (e.g., Monterey County Code Section 21.64.260, Preservation of Oak and Other Protected Trees, provides certain planning area-specific requirements). The THP permit review process and the Forest Practices Rules are designed to adequately protect water quality and stream stability, in part through the oversight of the Central Coast RWQCB. As a result, timber harvesting activities consistent with the 2007 General Plan would not be expected to degrade water quality.

The regulatory framework for mineral resources extractions affords the County direct authority over such activities. These activities are regulated in Monterey County by the County's mining ordinance and at the state level by the Surface Mining and Reclamation Act (SMARA). Nearly all proposed mining activities require evaluation of the adequacy of project-specific soil erosion control and mine reclamation plans. Sediment and erosion control plans are an important element of the CEQA review and mine permit process. Therefore, project-specific and cumulative adverse changes to water quality resulting from mining activities are generally considered to be adequately addressed through the existing County ordinance, through the CEQA review process, and by Office of Mine Reclamation staff at the state level.

Significance Determination

In summary, while timber harvesting and mining impacts are adequately addressed on the state level and by the THP process, County ordinance

requirements, and the County's surface mining ordinance, the 2007 General Plan provides additional water quality protections specific to hillside agricultural cultivation and agricultural conversion impacts on moderate slopes. Establishment of an agricultural conversion permit process, in part to identify development and design techniques for erosion control and slope stabilization, would further reduce potential erosion and sedimentation impacts from implementation of the 2007 General Plan (Policy OS-3.5). Further, the Central Coast RWQCB Conditional Waiver for Irrigated Agriculture regulates farm runoff to prevent release of erosion sediment. Thus, overall impacts will be less than significant with implementation of 2007 General Plan policies. No mitigation is required.

Mitigation Measures

Mitigation is proposed to adopt and implement a Stream Setback Ordinance. While not necessary to address significant water quality impacts, this measure will help to further reduce water quality impacts.

Mitigation Measure BIO-2.1: Stream Setback Ordinance

This measure was described above under Impact WR-1.

Significance Conclusion

This impact would be less than significant in light of the policies proposed with the 2007 General Plan, County ordinances, the RWQCB agricultural waiver program, and other regulations now in place. Mitigation Measure BIO-2.1 would further reduce potential water quality impacts.

Buildout

Impact of Development with Policies

The percentage of the county dedicated to agriculture has remained relatively steady over time. Buildout would result in a more expansive distribution of low-density development than is found today. This would result in the conversion of some lands that are currently in agricultural use. At the same time, increasing the population would result in the conversion of level agricultural land surrounding the cities, Community Areas, and Rural Centers to urban uses accommodating the expected increase in population. A reasonable scenario is that by buildout in 2092, agriculture will continue to be a major part of the county's economy, substantial amounts of agricultural land will have been converted to urban use in the areas surrounding today's cities and communities, and agriculture will have continued to expand onto steeper lands. This assumes that today's high-value crops, such as wine grapes, that can be supported on steeper land will continue to have value in the future. The expansion of agricultural areas onto steeper lands increases the potential for soil erosion and sedimentation.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent as today. Assuming that agricultural land would continue to be worth conserving, particularly as population increases and food production retains its importance, it is likely that local regulations would become more stringent in order to accommodate the conversion of steeper slopes to agricultural use while conserving the soil resources.

Mitigation Measures

Mitigation is proposed to adopt and implement a Stream Setback Ordinance. While not necessary to address significant water quality impacts, this measure will help further reduce water quality impacts.

Mitigation Measure BIO-2.1: Stream Setback Ordinance

This measure was described above under Impact WR-1.

Significance Conclusion

This impact would be less than significant in light of the policies proposed with the 2007 General Plan, County ordinances, the RWQCB agricultural waiver program, and other regulations now in place. Mitigation Measure BIO-2.1 would further reduce potential water quality impacts.

Potable Water Supply

Impact WR-4: Land uses and development consistent with the 2007 General Plan would exceed the capacity of existing water supplies and necessitate the acquisition of new supplies to meet expected demands (Significant and Unavoidable Impact.)

This impact discusses the availability of water supply to serve existing and future demands. Impacts related to the secondary impacts of water supply infrastructure are discussed in Impact WR-5. Impacts on groundwater levels are discussed in Impact WR-6. Impacts on seawater intrusion are discussed in Impact WR-7.

2030 Planning Horizon

Impact of Development with Policies

Because sustainable potable water supply, even in times of drought, is critical for new development, the 2007 General Plan proposes several key new policies to address water supply. Although the 2007 General Plan proposes only limited development in the unincorporated areas, demand is still expected to increase and require new supply and/or reallocation of existing

supply and implementation of more rigorous conservation and recycling measures. General Plan policies influence the activities and practices of individual land uses, for instance by requiring water conservation (e.g., low flush toilets and xeriscape landscaping) and by encouraging recycling or reuse of treated wastewater. In general, policy measures are designed to maintain a long-term sustainable supply. This requires that new development demonstrate adequate allocation, transmission, and distribution of supply.

Development and maintenance of a long-term sustainable water supply for Monterey County is a vital element of the 2007 General Plan. New development in the proposed Community Areas and additional population growth as allowed by the 2007 General Plan (combined with ongoing and potentially increased agricultural water demand) would stress capabilities to provide adequate potable water supplies.

In addition to potable water, water is needed to sustain the agricultural sector and to meet industrial, commercial, and institutional needs, as well as those for fire protection. Agriculture accounts for most of the water demand within the county. For example, over 90% of groundwater pumping in the Salinas Valley in 1995 served agricultural uses (Monterey County Water Resources Agency 2001a). Sustainable water supply requires a comprehensive water budget, as well as planning and management contingencies, in the event that water supplies are interrupted from natural or manmade emergencies. Emergency water supply shortages may result from slow cumulative actions such as low rainfall and drought, or increased demand from progressive development outpacing supply; they would also be due to a sudden disruption in infrastructure from an earthquake, political injunction, or terrorist act.

The 2007 General Plan assumes there will be a 27% increase in population in the unincorporated areas of the county between 2006 and the 2030 planning horizon, from 106,279 in 2006 to 135,375 in 2030. According to the *California Water Plan Update 2005*, per capita water use on the Central Coast averaged 181 gallons per day per capita in 2000 (California Department of Water Resources 2005). Table 4.3-9 provides a summary of projected potable water demand, based on the 2007 General Plan planning horizon and buildout, assuming per capita use of 181 gallons per day.

Agriculture will also place demands on raw water supplies. Based on trends in agricultural employment (AMBAG 2004; AMBAG 2008), no net expansion in overall agricultural acreage is projected for 2030 as virtually no increase in agricultural employment is forecast by AMBAG to 2030 for the county in the most recent (2008) and the immediately prior (2004) economic forecasts. The Salinas Valley Water Project EIR forecast a slight decline in agricultural water demand in the Salinas Valley for 2030 (MCWRA 2001a). While agricultural land use is expected to remain essentially constant during the 2030 planning horizon overall, agriculture's demands on water supplies in some areas are anticipated to increase (North County, pursuant to the projections in the Rancho Roberto Final EIR, for example), while they are

expected to decrease in other areas (Salinas Valley, pursuant to the SVWP Final EIR, for example). Overall, agricultural water demand is expected to remain relatively stable, with a small decline.

Table 4.3-9. Monterey County 2007 GP Estimated New Water Demand from Urban Uses and New Wineries (2030 and Buildout)

Development Area	Water Management District	Water Basin	2030 New Population (1)	Buildout New Population (2)	2030 New Water Demand (AF) (3)	Buildout New Water Demand (AF) (3)
Community Areas						
Chualar CA	MCWRA	Salinas River	1,668	4,224	338	856
Fort Ord CA	MCWRA/ MPWMD	Salinas River/ Seaside Aquifer (4)	9,572	24,246	1,941	4,916
Boronda CA	MCWRA	Salinas River	807	2,044	164	414
Pajaro CA	PVWMA	Pajaro River	752	1,904	152	386
Castroville CA	MCWRA	Salinas River	1,814	4,596	368	932
Community Areas Subtotal			14,613	37,013	2,963	7,504
Rural Centers						
Pine Canyon RC	MCWRA	Salinas River	1,894	4,798	384	973
San Lucas RC	MCWRA	Salinas River	188	476	38	96
Bradley RC	MCWRA	Salinas River	889	2,253	180	457
Lockwood RC	MCWRA	Salinas River	246	622	50	126
Pleyto RC	MCWRA	Salinas River	178	451	36	91
San Ardo RC	MCWRA	Salinas River	534	1,352	108	274
River Road RC	MCWRA	Salinas River	432	1,095	88	222
Rural Centers Subtotal			4,361	11,047	884	2,240
AHOs						
Carmel Mid-Valley AHO	MPWMD	Carmel River	434	1,098	88	223
Hwy 68/Airport AHO	MPWMD	Seaside Aquifer	2,835	7,181	575	1,456
Hwy 68/Reservation AHO	MCWRA	Salinas River	1,034	2,619	210	531
AHOs Subtotal			4,302	10,898	872	2,209
Cachagua	MPWMD/ MCWRA	Carmel River/ Salinas River (4)	51	372	10	75
Carmel Valley	MPWMD	Carmel River	294	2,135	60	433
Central Salinas Valley	MCWRA	Salinas River	177	1,284	36	260

Development Area	Water Management District	Water Basin	2030 New Population (1)	Buildout New Population (2)	2030 New Water Demand (AF) (3)	Buildout New Water Demand (AF) (3)
Greater Monterey Peninsula	MPWMD	Carmel River/ Seaside Aquifer (4)	1,552	11,250	315	2,281
Greater Salinas	MCWRA	Salinas River	542	3,928	110	796
North County	MCWRA/ PVWMA	Salinas River/ Pajaro River (4)	1,266	9,180	257	1,861
South County	MCWRA	Salinas River	365	2,644	74	536
Toro	MCWRA	Salinas River	1,572	11,393	319	2,310
Outside of CA, RA, AHOs			5,819	42,186	1,180	8,553
Wineries in AWCP	MCWRA	Salinas River			224 (5)	224 (5)
INLAND AREA TOTAL			29,096	101,145	6,123	20,731
Subtotal	MCWRA	Salinas River			3,830	12,527
Subtotal	MPWMD	Carmel River			310	1,834
Subtotal	MPWMD	Seaside Aquifer			1,702	5,054
Subtotal	PVWMA	Pajaro River			281	1,317

Notes:

Assumes persons/housing unit = AMBAG 2030 average.

Assumes person/housing unit average from 2007 GP estimates.

Assumes per capita water use [urban applied water (including residential, commercial, industrial, and landscape uses) for Central Coast Region] of 181 gpd per California Water Plan Update 2005.

Assumes 50/50 split between sources/district; this may overestimate or underestimate the totals presented above

Based on calculations in table later in this section

As discussed elsewhere in this EIR, residents of the unincorporated area will make up about 25% of the county's total population in 2030. Therefore, water demand in the cities would be expected to be roughly three times that shown above for the unincorporated areas.

Community Areas

With implementation of the SVWP and CSIP, the Salinas Valley will have sufficient supplies to 2030, and seawater intrusion will be effectively halted in the Castroville area (Monterey County Water Resources Agency 2001a). Development in the Fort Ord and Pajaro Community areas will affect the already overdrafted Seaside Aquifer and Pajaro Valley groundwater basins.

Table 4.3-10, based primarily on information from Urban Water Management Plans (UWMPs) and the Municipal Service Reviews (MSRs) prepared by various water suppliers and Monterey County

LAFCO, summarizes water supply issues affecting Community Areas. Note that these reports generally cover a wider service area than the proposed Community Area boundaries, and therefore discuss groundwater basin concerns on a larger scale. More specific information about demand, supply, and overdraft conditions is found in Section 4.3.2.1, Regional Setting, above.

Table 4.3-10. Water Supply Issue Summary for Community Areas

Community Area	Groundwater Basin	Water Supplier	Potable Water Availability Issues
Pajaro	Pajaro Valley basin	Pajaro/Sunny Mesa Community Services District	Overdraft; seawater intrusion
Castroville	Salinas Valley basin (180-Foot/400-Foot Subarea)	Castroville Water District	Overdraft, seawater intrusion; conversion of agricultural land
Boronda	Salinas Valley basin (180-Foot/400-Foot Subarea)	California Water Service Company, Salinas District	Overdraft; seawater intrusion into 180-foot aquifer within 1 mile of Cal-Water's closest well (diverting production)
Chualar	Salinas Valley basin (180-Foot/400-Foot Subarea)	Cal-Am Water Company, Monterey District	Overall supply severely short, but Chualar wells are independent of larger basins and represent small fraction of District demand
Fort Ord	Salinas Valley basin (Seaside and Corral de Tierra Subareas)	Marina Coast Water District	Seawater intrusion; supply adequate unless Fort Ord Reuse Authority growth limits lifted (imbalance of 2,548 AFY).

Pajaro

The Pajaro Community Area of the Pajaro Valley groundwater basin is in severe overdraft condition, with seawater intrusion problems and groundwater levels in decline. Any substantial increase in water use would contribute to further depletion of water supplies, resulting in a net deficit in aquifer volume and further lowering of the groundwater table. Future growth in the Community Area cannot proceed without significant groundwater impacts unless new supplies are secured.

Castroville

Castroville is in the 180-Foot/400-Foot Subarea of the Salinas Valley basin, where any additional pumping from the local groundwater would result in further seawater intrusion. Some of Castroville's

future development would be through infill and intensification of already urbanized areas within the community.

The CSIP has helped maintain safe well yields, raising water levels up 20 to 40 feet, and slowing seawater intrusion in this area. Additional efforts through the SVWP are expected to halt seawater intrusion by 2030.

With operation of the SVWP, CSIP, and/or other measures, anticipated withdrawals from the 180-Foot/400-Foot subarea to meet water demands of the Castroville Community Area would avoid further lowering of water levels in the aquifer and further seawater intrusion.

Boronda

Boronda is located in the 180-Foot/400-Foot subarea of the Salinas Valley groundwater basin and currently obtains water through Cal-Water, the same distribution system as the City of Salinas. Increased groundwater extraction from these wells would contribute to further seawater intrusion.

According to the Cal-Water 2004 UWMP, the company has already begun shifting production further south and into the 400-foot aquifer (in response to seawater intrusion into the 180-foot aquifer within 1 mile of Cal-Water's closest well). However, completion of the SVWP is expected to accommodate future growth in Boronda to 2030 without further seawater intrusion or lowering of groundwater levels.

Chualar

Chualar is situated in a portion of the Salinas Valley groundwater basin that receives sufficient groundwater recharge and is not subject to seawater intrusion. Past and current agricultural practices have resulted in water quality degradation of the shallow aquifers (primarily high nitrate levels); however, potable water supply is available from deeper in the aquifer system. According to Cal-Am's 2005 UWMP, Chualar is one of the company's six Highway 68 corridor systems, which are managed independently of the larger basin systems and represent only 5% of Cal-Am's demand. Consequently, the area is not subject to Cal-Am's overall shortage conditions. The level of growth anticipated for the proposed Community Area would not incur significant water supply impacts.

Fort Ord

Seawater intrusion forced relocation of the former Fort Ord's wells from the Main Garrison to a more inland location. However, these

wells are also now at risk of seawater intrusion and therefore are not considered a sustainable source of supply to meet future water demands of the Fort Ord community. MCWD is currently drawing water from the non-sustainable Deep Zone, which, combined with the risk of further seawater intrusion from continued pumping in the 180- or 400- foot aquifers, rules out possibilities for meeting the Community Area's water demands from local groundwater sources. In response, MCWD recently (2007) constructed a reverse osmosis desalination plant to convert seawater to potable drinking water (Marina Coast Water District 2008). When operating, this facility can provide up to 300,000 gallons of potable water per day.

Potential water sources for these uses include development of a new well field in the vicinity of Spreckels (where sufficient recharge occurs to preclude significant impacts) with conveyance facilities to Fort Ord; and a desalination plant proposed by Cal-Am at Moss Landing. The Fort Ord Reuse Plan identified a need to augment available potable water supply by 2,400 AFY to accommodate future development. This projection assumed the availability of an additional 6,600 AFY under an agreement with MCWRA that includes Fort Ord as a beneficiary of the SVWP. Sources for both the 6,600 AFY and the additional 2,400 AFY remain uncertain, pending approval of Cal-Am's Coastal Water Project.

Until additional sources and transfer facilities are in place, future water supply to meet the demands of proposed land uses at Fort Ord is not readily obtainable without resulting in substantial depletion of groundwater supplies and further seawater intrusion.

Despite lack of certainty over supply, the MCWD's UWMP (2005) forecasts that the District's service area will have sufficient water available to meet expected demands through 2025 with surplus (unless the currently proposed Fort Ord Reuse Plan development land use limits are exceeded).

Affordable Housing Overlays (AHOs))

Development in the AHOs is included in the overall demand numbers for the various groundwater basins. The Highway 68/Airport AHO is in the Seaside aquifer and the Mid-Valley AHO is in Carmel River Basin; provision of water to new growth in these areas will be dependent on the Monterey Peninsula regional supply projects discussed above. The Highway 68/ Reservation Road AHO is the Salinas Valley, and adequate supply will be provided with completion of the SVWP.

Rural Centers and Development outside Focused Growth Areas

Development in the Rural Centers and on individual lots will contribute to growth in the unincorporated county to 2030. Demand from these future projects is included in the overall demand numbers for the various groundwater basins.

The Rural Centers are all in the Salinas Valley, and adequate supply will be provided with completion of the SVWP.

Legal lot development may occur outside the service areas of water districts, in which case it would be served by individual water wells. As noted in the setting discussion, the groundwater basins in the North County and the Seaside aquifer are overdrafted and future development there will exacerbate that significant effect.

Agricultural Winery Corridor Plan

The new wineries proposed to be constructed during the planning horizon under the ACWP will also generate a demand for water. The AWCP would authorize up to 40 new "artisan" wineries (producing from 2,000 to 50,000 cases of wine per year) and 10 new "full-scale" wineries (producing from 50,000 to over 1 million cases per year). The expected size range of the full-scale wineries is described in Chapter 3 of this EIR.

Following is an estimate of the water demand for typical wineries under the proposed 2007 General Plan AWCP. Assumptions for the analysis are as follows:

- One case of wine equals 2.4 gallons (Monterey County Health Department 2008a)
- A typical winery uses 7 gallons of water to produce one gallon of wine (West Yost 2005)
- Water demand would be 16.8 gallons of water per case
- 40 artisan wineries will be built by 2030, each averaging a production rate of 25,000 cases per year by that time
- The full-scale wineries will reflect the following numbers and production rates by 2030: 5 producing 75,000 cases per year; 2 producing 175,000 cases per year; and 1 each producing 375,000, 750,000, and 1.5 million cases yearly.

Table 4.3-11. Projected AWCP Winery Yearly Water Demand

Type of Winery	Number of Wineries	Water Demand per Winery (gallons)	Water Demand per Winery (acre-feet)	Total Demand (acre-feet)
Artisan (25K cases per year)	40	420,000	1.29	51.6
Full-scale (75K cases per year)	5	1.26 million	3.87	19.35
Full-scale (175K cases per year)	2	2.94 million	9.02	18.04
Full-scale (375K cases per year)	1	6.3 million	19.3	19.3
Full-scale (750K cases per year)	1	12.6 million	38.7	38.7
Full-scale (1.5M cases per year)	1	25.2 million	77.3	77.3
Total Water Demand—all wineries (acre-feet)				224.29

This estimate does not include other uses allowable in the AWCP. They would add to the demand, but would have less demand than the wineries.

The water supply needed to serve the wineries may include water that is currently being used for agricultural production. As described in Chapter 1, a typical artisan winery would occupy approximately 1.2 acres; a typical full-scale winery would occupy 9.4 acres. In total, the 50 new wineries envisioned under the 2007 General Plan AWCP would occupy approximately 142 acres. Because wineries are not "compatible uses" under the County's Williamson Act contracts and the County has traditionally been very reticent to cancel contracts, the new wineries are unlikely to be located on agricultural land that is contracted under the Williamson Act. Assuming conservatively that about 30% of the land available for new wineries in the proposed wine corridor is currently in agricultural use, approximately 43 acres would be converted. The Department of Water Resources estimates that on the Central Coast, average on-farm water application ranges from 1.4 to 2.0 acre-feet per acre (California Department of Water Resources 2005). At that rate, approximately 60–86 acre-feet of the water necessary for winery operations is part of the existing demand within the AWCP.

The AWCP is located in the Salinas River basin. With implementation of the SVWP, water supply is available to serve new uses in the corridor. As noted in Impact WR-5 below, new distribution pipelines will be necessary.

2007 General Plan Policies

The 2007 General Plan proposes a number of policies that (together with state law requiring large subdivisions to obtain written assurance of the ability to supply water) would help ensure that new or expanded potable water supplies and facilities would be provided for future growth.

The policies below are summarized for both water supply and water supply infrastructure for this impact (WR-4) and the following impact (WR-5).

Public Services Element

The Public Services Element of the 2007 General Plan contains goals and policies addressing water supply issues related to land use. As discussed under Impact PSU-1, Public Services Element Policies PS-1.1 through PS-1.6 set forth general standards for the provision of adequate public facilities. Public Services Element Policies 2.1 through 2.6 establish specific policies for potable water supply and quality.

Public Services Element Policy PS-2.1 promotes coordination between and consolidation with those public water service providers drawing from a common water table to ensure that the water table is not overdrawn.

Public Services Element Policy PS-2.2 requires MCWRA to ensure adequate monitoring of wells in those areas experiencing rapid growth.

Public Services Element Policy PS-2.3 requires new development to connect to existing water service providers where feasible, with an emphasis on connections to public utilities.

Public Services Element Policy PS-2.4 calls for the establishment of minimum regulations for installing any new domestic well located in consolidated materials (e.g., in hard rock areas).

Public Services Element Policy PS-2.5 addresses establishing water quality testing regulations for individual wells on lots of record. The regulations would identify testing parameters for a one-time required water quality test for individual wells at the time of well construction and a process that allows the required one-time water quality test results to be available to future owners of the well. The regulations would not establish criteria that would prevent the use of the well in the development of the property and would not apply to agricultural wells.

Public Services Element Policy PS-2.6 stipulates that a Hydrologic Resources Constraints and Hazards Database be developed and maintained in the County GIS. The GIS would be used to identify areas containing hazards and constraints that would potentially impact the type or level of development allowed in these areas (Policy OS-3.4).

Public Services Element Policy PS-2.7 promotes incentive programs that encourage owners to voluntarily take cultivated lands on slopes with highly erosive soils out of production.

Public Services Element Policy PS-2.8 requires that all projects be designed to maintain or increase the site's pre-development absorption of rainfall (minimize runoff) and to recharge groundwater where appropriate.

Public Services Element Policy PS-2.9 mandates that the County use discretionary permits to manage construction of impervious surfaces in important groundwater recharge areas.

Public Services Element Policies 3.1 through 3.15 establish specific policies for water supply.

Public Services Element Policy PS-3.1 prohibits approval of new development that does not have proof of sustainable water supply, both in quality and quantity, to serve the development. The first single-family dwelling and accessory uses on an existing lot of record are exempted from this policy.

Public Services Element Policy PS-3.2 allows credits to be issued for significant reduction in the historical water use on site that would allow for additional development.

Public Services Element Policy PS-3.3 stipulates that specific criteria for proof of a long-term sustainable water supply for new development be developed. Criteria may include, but would not be limited to, water quality; production capability; recovery rates; effect on wells in the immediate vicinity; existing groundwater conditions; and technical, managerial, and financial capability of the water purveyor.

Public Services Element Policy PS-3.4 requires that specific criteria be developed for use in the evaluation and approval of adequacy of all new wells. Criteria would assess both water quality and quantity including, but not limited to, water quality; production capability; recovery rates; effect on wells in the immediate vicinity; existing groundwater conditions; and technical, managerial, and financial capability of the water purveyor.

Public Services Element Policy PS-3.7 requires that a determination of a long-term sustainable water supply be made on a basin-by-basin basis and not based on hauled water.

Public Services Element Policy PS-3.8 promotes coordination between the County and all agencies responsible for the management of existing and new water resources.

Public Services Element Policy PS-3.9 requires that a program to eliminate overdraft of water basins be established as part of the CIFP of the 2007 General Plan. The program would use water banking, groundwater and aquifer recharge and recovery, desalination, pipelines to new supplies, and a variety of conjunctive use techniques.

Public Services Element Policy PS-3.10 encourages systems that use grey water and cisterns for residential and commercial landscaping, subject to a discretionary permit.

Public Services Element Policy PS-3.11 requires that a standard tentative subdivision map and/or vesting tentative and/or Preliminary Project Review Subdivision map application for either a standard or minor subdivision be approved only if the applicant provides evidence of an assured long-term water supply, in terms of yield and quality, for all lots to be created through subdivision. The policy includes detailed requirements for evidence of water supply.

Public Services Element Policy PS-3.12 promotes the use of water conservation and safe, beneficial re-use of water in meeting water supply needs.

Public Services Element Policy PS-3.13 mandates establishment of an ordinance identifying conservation measures that would reduce potable water demand.

Public Services Element Policy PS-3.14 establishes strategies for maximizing the use of recycled water as a potable water offset to manage water demands and meet regulatory requirements for wastewater discharge.

Public Services Element Policy PS-3.15 mandates development of guidelines and procedures for conducting water supply assessments and determining water availability for development approvals.

Area Plan Policies

The following Area Plan supplemental policies also address the potable water supply for future development proposed in the 2007 General Plan.

North County Area Plan

North County Area Plan Policies NC-5.1 and NC-5.2 prioritize the development of water projects that can offer a viable water supply to water-deficient areas in North County, while also protecting groundwater recharge areas.

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-1.1 requires that future development within the Butterfly Village Special Treatment Area provide adequate infrastructure, including for potable water.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policy CSV-5.2 stipulates that recreation and visitor-serving commercial uses be allowed only if it can be proven that they would not interfere with prime groundwater recharge areas, would not overdraft existing groundwater supplies, would meet state water quality and quantity standards, and would not adversely impact groundwater quality. Other policies, such as CSV-5.1 and CSV-5.3, require protection of groundwater recharge areas to maintain both water quality and sufficient supply volume.

Carmel Valley Master Plan

The Carmel Valley Master Plan contains several supplemental policies related to water supply. Policy CV-5.1 requires pumping from the Carmel River aquifer to be managed in accordance with the Carmel River Management Program. This policy also requires that new development not cause sufficient drawdown of the aquifer to threaten natural vegetation. Water projects designed to address future growth in the Carmel Valley shall be supported (Policy CV-5.2). Conservation and reclamation projects should be incorporated into project design (Policy CV-5.3). Policies CV-5.4, CV-5.5, and CV-5.6 are designed to protect water quality.

Cachagua Area Plan

In the Cachagua Area Plan, Policy CACH-3.5 requires that watershed impacts due to mining, timber, or related industries be mitigated. CACH-5.1 states that the area should not be deprived of water reasonably required for the beneficial needs of its inhabitants and that water should not be exported outside the planning area boundaries.

South County Area Plan

South County Area Plan Policy SC-5.1 similarly protects groundwater recharge areas, while Policy SC-5.3 prohibits encroachment on the main river channels where there is major recharge to the underlying groundwater basins.

Community Area Policies

Fort Ord Master Plan

In the Fort Ord Master Plan, several supplemental policies and associated programs are included in the Hydrology and Water Quality Element. Policy A-1 requires project applicants to demonstrate that all measures would be taken to ensure that runoff is minimized and infiltration maximized in groundwater recharge areas. Programs developed under this policy also would promote water conservation, recycling, and reclamation efforts. Policy A-2 proposes a program to gauge stream flows and manage creek development such that groundwater recharge in these areas is maintained. Policy B-1 states that the County shall ensure additional water to critically deficient areas with programs combining various efforts of the applicable water agencies. Policy B-2 is similar, while Policy C-1 states that the County shall comply with all mandated water quality programs and establish local water quality programs as needed. Policy C-3 is specifically designed to mitigate seawater intrusion, based on the Salinas Valley Basin Management Plan and through cooperation between MCWRA, MPWMD, and the County. Program C-3.5 (groundwater wells) states that the County shall carry out all actions necessary to ensure that the installation of water supply wells comply with the State of California Water Well Standards and well standards established by the Monterey County Health Department. Program C-3.6 (infrastructure) establishes that the County shall carry out all actions necessary to ensure that the distribution and storage of potable and non-potable water comply with the State Health Department regulations through Title 22. Water supply for fighting fires is addressed under Fire, Flood, and Emergency Management Policy A-2, which requires the County to provide fire suppression water system guidelines and implementation plans for existing and acquired former Fort Ord lands that are equal to or greater than those recommended in the Fort Ord Infrastructure Study (FORIS Section Fort Ord Reuse Plan—Table 4.1.8) for fire protection water volumes, system distribution upgrades, and emergency water storage.

Significance Determination

Implementation of the 2007 General Plan will increase water demand for urban and other uses.

The above-listed 2007 General Plan and Area Plan policies, implemented in conjunction with existing County code and state and federal water laws, will reduce the need for additional water supplies.

The policies include comprehensive requirements to ensure that new discretionary development contemplated in the proposed 2007 General Plan has adequate potable water supplies before it can be built. Policy PS-2.8 requires projects be designed to maintain or increase the site's pre-development absorption of rainfall (minimize runoff) and to recharge groundwater where appropriate. Policy PS-3.1 prohibits approval of new development that lacks proof of sustainable water supply. Policy PS-3.3 requires the development of criteria for proof of sustainable water supply for new development, including water quality, production capacity, recovery rates, effect on nearby wells, existing groundwater conditions, and the capabilities of the water purveyor. In effect, these policies delay discretionary development when there is no sustainable water supply and would avoid significant impacts related to water supplies.

In the Salinas Valley, water supply projects are being built or are in the permitting stage that will meet demands to 2030 without resulting in overdraft. On the Monterey Peninsula and in the Pajaro Valley, while planning is underway for new supply to address current overdraft and seawater intrusion problems, this planning is not sufficiently developed to assure long-term water supplies for new development. Each of these areas is discussed separately in more detail below.

Salinas Valley

In the Salinas Valley, the SVWP will provide sufficient additional supplies from the system's reservoirs to meet 2030 projected demands and halt further seawater intrusion. The impacts of the 2007 General Plan would be less than significant within the Salinas Valley for water supply during the 2030 planning horizon.

Monterey Peninsula

Once in place, the Coastal Water Project desalination plant and the full implementation of the Aquifer Storage and Recovery project for the Seaside Aquifer would both reduce pumping in the impacted Seaside aquifer and reduce illegal diversions from the Carmel River. It will solve the existing supply problem and enable Fort Ord allotments to be met, but whether the CPUC will permit a desalination plant of sufficient capacity to serve additional growth is unknown at this time. A larger plant is among the alternatives being considered.

Similarly, if approved and installed, the Pajaro/Sunny Mesa Community Services District's desalination plant at Moss Landing would be a potential source of supply to the Pajaro Valley and possibly the Monterey Peninsula. However, it is not known at this time whether that

water would be devoted to the Pajaro River problems or if a portion would be available for distribution to the Monterey Peninsula. Supplies sent to the Monterey Peninsula would not be available to reduce overdraft and seawater intrusion in the Pajaro basin.

A regional supply program has been under discussion by the Water for Monterey County Coalition, which would provide additional water for growth to the Monterey Peninsula and North County. This program has been proposed to the CPUC as an alternative to the Cal-Am desalination proposal.

There are an estimated 1,134 vacant residential lots in the Carmel Valley Master Plan and the Greater Monterey Peninsula Plan areas. The development of these lots, albeit slowly because of the MPWMD's existing restrictions on new connections, will exacerbate the existing water shortfall until a regional solution providing water for new development is in place.

As noted above, the 2007 General Plan constrains discretionary development until long-term water supplies are secured. At present, none of the proposed projects to substantially address the existing water supply problems has reached the Draft EIR phase of CEQA compliance (other than the MPWMD ASR project). Thus, while potentially feasible, there is no assurance that comprehensive solutions will be implemented in time to provide water for new development. Discretionary development that results in new water demands will be delayed until this happens, but single-family residential development will not. Thus, development on existing legal lots in the Carmel Valley Master Plan and Greater Monterey Peninsula Plan areas would result in a significant impact, unless such development has no net increase in water demand and/or new supply sources are developed.

Pajaro Valley

The PVWMA's Basin Management Plan includes the following water supply efforts; water conservation program (5,000 acre-feet), Harkins Slough project (1,100 acre-feet), Murphy Crossing project (1,600 acre-feet), and the Watsonville Area Water Recycling Project (4,000 acre feet) and related distribution system. These projects will relieve pumping pressure by providing recycled water supplies to replace groundwater used for farmland irrigation. However, these efforts will not be sufficient to prevent continued overdraft as result of urban and agricultural demands without importation of water from the Central Valley.

There are no plans to import additional water supplies from outside the county in order to meet future demand. Although the PVWMA has long contemplated obtaining water from the State Water Project, that now appears to be infeasible because of the lack of necessary funding (and

lack of local support for funding), and court-ordered reductions in state and federal project water deliveries relating to the impacts of Delta pumping on Endangered Species Act-listed fish species. In December 2007, Federal District Judge Oliver Wanger imposed new rules on state and federal agencies that may reduce water deliveries south of the Delta by as much as 30% in 2008, in order to protect the threatened Delta smelt. In April 2008, Judge Wanger invalidated the biological opinion on salmon and steelhead trout under which DWR and the U.S. Bureau of Reclamation operate their water delivery systems. This is expected to result in continued reductions in water deliveries (San Francisco Baykeeper 2008a, 2008b). These reductions occur in the face of continued population growth in the areas currently supplied by the state and federal aqueducts. The fragility of the state and federal water delivery projects in the face of growing demand greatly reduces the possibility that the PVWMA would obtain water from those sources.

Reduction in coastal pumping proposed by PVWMA will increase the sustainable yield of the groundwater basin; however, new supply is necessary to achieve this reduction. PVWMA estimates that it needs 21,000 acre-feet of new supply to meet existing demands and address overdraft. Of this, the existing feasible projects noted above can supply up to 11,700 acre-feet. PVWMA also estimates that it needs 30,000 acre-feet for 2040 conditions to account for growth (PVWMA 2001). Thus, without additional supply, the overdraft condition will remain and get worse if additional water demands occur within the Pajaro Valley.

The proposed Pajaro-Sunny Mesa desalination plant at Moss Landing would provide up to 21,000 acre-feet of new supply for agricultural use, as well as maintenance of the hydraulic barrier to seawater intrusion. The proposed plant is in the initial stages of permitting, so its date of availability is unknown and cannot be assured to provide water for new growth.

There are an estimated 577 vacant residential lots in the North County Plan area. The 2007 General Plan limits development in these areas to a single residence on each such lot, but also relieves such development of the requirement to demonstrate a sustainable water supply prior to development under Policy PS-3.1. Development of a portion of these existing lots of record by 2030 would exacerbate current problems.

While current PVWMA efforts will help to provide a portion of supply to address current conditions, there is no assurance that solutions will be implemented in time to provide water for new development. Discretionary development that results in new water demands will be delayed until this happens, but single-family residential development will not. Thus, development on existing legal lots in the portion of the North County area within the Pajaro Valley would result in a significant impact, unless such development has no net increase in water demand and/or new supply sources are developed.

Mitigation Measures

The following measure is intended to reduce impacts on the Monterey Peninsula during the 2030 planning horizon to below a level of significance. However, for the reasons discussed above, there are no feasible measures that would reduce the impacts of development on existing lots of record in the North County and the Pajaro River below a level of significance.

WR-1: Support a Regional Solution for the Monterey Peninsula in addition to the Coastal Water Project

The County will revise the draft 2007 General Plan to include the following new policy:

PS-3.16. The County will participate in the Water for Monterey County Coalition, or similar regional group, for the purpose of identifying and supporting a variety of new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Monterey Peninsula and Seaside basin, while continuing to protect the Salinas and Pajaro River groundwater basins from saltwater intrusion. The County's general objective, while recognizing that timeframes will be dependent upon the dynamics of the regional group, will be to complete the cooperative planning of these water supply alternatives within five years of adoption of the General Plan and to implement the selected alternatives within five years after that time.

Significance Conclusion

Implementation of the 2007 General Plan would increase demand for water in portions of the county beyond available supply.

Within the Salinas Valley, the SVWP will provide sufficient supply to reverse existing overdraft and seawater intrusion problems and to provide water for new development. No new or expanded water entitlements are contemplated to meet demand to 2030, and thus this is considered a less-than-significant water supply impact (see separate discussion below under Impact WR-5 regarding water supply infrastructure).

On the Monterey Peninsula and in the Pajaro Valley, while current planning is underway to address current problems and provide water for new development, none of the major supply projects is sufficiently developed (i.e., none are at the Draft EIR phase) to conclude that they will provide adequate water to address current problems and future needs. Mitigation Measure WR-1 puts the County on record as supporting a regional solution (but not necessarily those currently proposed). 2007 General Plan policies will constrain development until long-term water supplies are assured. Until then, non-discretionary development on legal lots of record will exacerbate existing water supply problems, and this is considered a significant and

unavoidable water supply impact (see separate discussion under Impact WR-5 below regarding water supply infrastructure).

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan would result in demand that exceeds available water supplies in all parts of the county. There are no specific water supply projects identified beyond the 2030 horizon. Typical projects to support the greater population at buildout could include desalination, surface water diversion, new groundwater wells, water recycling, aquifer storage and recovery, conservation, and importation from outside the local area. Water transfers within the county would be feasible only if new surface water or desalination supplies become available.

Significance Determination

At buildout in 2092, there would be nearly 36,000 more dwellings within the unincorporated county than existed in 2006. The specific locations of these future dwellings, their design, their relationship to other development and land uses, and the character of their surroundings cannot be accurately determined that far into the future. While it would therefore be speculative to evaluate the specific level of potential water resources impacts related to buildout of all residential lots in the county, general conclusions can be made.

Buildout of the proposed 2007 General Plan would increase water demand within the county. Barring new technology that would make desalination less expensive or some other new source of water not currently known that is both economical and highly productive, this additional development would further stress both water supply and groundwater quality.

The SVWP has the capacity to provide additional water to the Salinas Valley with expansion of the distribution system, capture of additional flows through changes in operational management of the dams, and continued trends of per capita conservation. The MCWRA estimates this to be as much as 10,000 AFY, which would be slightly more than estimated as needed for new post-2030 demand (~9,000 acre-feet; see Table 4.3-9).

Given that current water supply planning for the Monterey Peninsula and for the Pajaro Valley to address existing problems and to provide future supplies for 2030 is at a preliminary level, there is no conceptual planning for the period after 2030.

The county's primary rivers, the Salinas, the Carmel, and the Pajaro, have substantial annual flows that could provide additional supplies by diverting winter high flows into storage systems. However, there is no new storage and related distribution systems being proposed on any of these rivers (other

than the dam modifications included in the SVWP and the conceptual post-2030 improvements noted above), portions of these annual flows are already supporting groundwater levels and thereby supplying existing wells, and reduction in flows could adversely affect protected salmonid species (salmon and steelhead) and other aquatic species. Substantial hydrogeological study, infrastructure planning, public or private financing, and federal and state agency permitting would need to be completed before these flows could be tapped. Planning and permitting would need to include consideration of impacts on biological and other resources. There would also have to be community support for changing reliance on groundwater to surface water supplies.

More extensive conservation or conjunctive use programs alone would not avoid this impact. Most water use in the county is attributable to agriculture. As supplies become restricted, they will become more expensive. This has traditionally moved farmers to abandon marginal farmlands (e.g., those with little potential to yield profitable crops), switch to less thirsty crops, or undertake more economical water regimes (e.g., sprinklers, drip irrigation, cropping patterns) to the extent practical given crop needs, weather, soil type, markets, and other factors. Given the importance of agriculture to the county and state economy, as well as its place in the food supply, assuming significant reductions in agriculture is not reasonable. While farms will reduce their water use through a variety of means in the face of the future shortfall, agriculture will remain a major water user and contributor to this significant effect,

The County is required by state housing element law to provide sufficient land that is planned and zoned to accommodate future population growth (Government Code Section 65583). While urban water conservation measures mandated by the 2007 General Plan, local ordinances, and the Urban Water Management Planning Act (Water Code Section 10610, et seq.) will reduce per capita water use in the future, the increase in population will result in a net increase in demand.

Global climate change will have some effect on future precipitation patterns in this part of California in the future. That might in turn affect available water supplies in the reservoirs at the upper end of the Salinas River. What that effect will be is unknown. The California Department of Water Resources reports that California's precipitation is on an upward trend since the 1960s, but that the yearly amount of precipitation is increasingly variable (i.e., wet years can be followed by dry years; California Department of Water Resources 2006). Present climate models do not have the precision to determine with any certainty what will be the case in Monterey County. If global climate change does adversely affect the county's water storage, the county's water supply from groundwater and surface water sources will be reduced. Additional development would result in a significant and unavoidable impact should that occur.

Sea level rise from global climate change is expected to increase seawater intrusion, thereby reducing freshwater yields from the groundwater aquifers. (California Department of Water Resources 2006) The California Department of Water Resources suggests that the threat posed by sea level rise can be lessened by controls on well construction and groundwater production, and the operation of hydraulic barrier projects (California Department of Water Resources 2006). All of these approaches would be undertaken in Monterey County through the policies of the 2007 General Plan, local ordinances, and the seawater intrusion projects underway in the Pajaro Valley, Castroville area, Monterey Peninsula, and Salinas Valley. Despite these current and future activities, there is a reasonable possibility that seawater intrusion would continue to be a significant effect because of the further pressure created by sea level rise. Ultimate buildout, by increasing water demand, would exacerbate that effect on groundwater.

Future sources of water in 2092 are unknown, and cannot be known at this time. Given the expected demands on the state and federal water systems as a result of California's projected growth, those systems are unlikely to be able to supply Monterey County's needs at buildout. Similarly, there is no information available about the locations of any other water supply facilities needed to meet 2092 demands, their physical characteristics, and their uses. Therefore, a discussion of their potential environmental impacts would be speculative.

Mitigation Measures

Implementation of the proposed 2007 General Plan policies and existing regulations would reduce potential impacts from increased water demand. The following mitigation measures would reduce impacts in the Salinas Valley and Monterey Peninsula. However, as described above, there are no feasible mitigation measures in the Pajaro River basin. The mitigation measures would not reduce the impact below a level of significance.

WR-1: Support a Regional Solution for the Monterey Peninsula in addition to the Coastal Water Project

This measure is described above.

WR-2: Initiate Planning for Additional Supplies to the Salinas Valley

The County will revise the draft 2007 General Plan to include the following new policies:

PS-3.17. The County will pursue expansion of the SVWP by initiating investigations of the capacity for the Salinas River water storage and distribution system to be further expanded. This shall also include investigations of expanded conjunctive use, use of recycled water for groundwater recharge and seawater intrusion barrier, and changes in

operations of the reservoirs. The County's overall objective is to have an expansion planned and in service by 2030.

PS-3.18. The County will convene and coordinate a working group made up of the Salinas Valley cities, the MCWRA, and other affected entities for the purpose of identifying new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Salinas Valley. These may include, but not be limited to, expanded conjunctive use programs, further improvements to the upriver reservoirs, additional pipelines to provide more efficient distribution, and expanded use of recycled water to reinforce the hydraulic barrier against seawater intrusion. The County's objective will be to complete the cooperative planning of these water supply alternatives by 2020 and have projects online by 2030.

Mitigation Measure BIO-2.3: Add Considerations regarding Riparian Habitat and Stream Flows to Criteria for Long-Term Water Supply and Well Assessment

Public Services Policies PS-3.3 and PS-3.4 establish the criteria for proof of a long-term water supply and for evaluation and approval of new wells. The following criteria shall be added to these policies:

- Policy PS-3.3.i—Effects on instream flows necessary to support riparian vegetation, wetlands, fish, and other aquatic life including migration potential for steelhead.
- Policy PS-3.4.g—Effects on instream flows necessary to support riparian vegetation, wetlands, fish, and other aquatic life including migration potential for steelhead.

Significance Conclusion

A second phase of the Salinas Valley Water Project is feasible, according to MCWRA. From a water supply point of view, implementation of Mitigation Measures WR-2 would mitigate the water supply impact in the Salinas Valley of 2007 General Plan buildout to a less-than-significant level (see separate discussion of water supply infrastructure under Impact WR-5 below).

There are no current plans for acquiring new water supplies to meet the post-2030 long-term demand for the Monterey Peninsula or the Pajaro Valley. While discretionary development would be delayed until long-term water supplies are assured, non-discretionary development would exacerbate existing water supply problems. In theory, extension of the currently proposed desalination, aquifer storage and recovery, water recycling, river diversion, and conservation projects would provide water for these areas, but conceptual proposals for after 2030 are not even under consideration at this time. Thus, this would be a significant and unavoidable water supply impact on the Monterey Peninsula and in the Pajaro Valley portion of the North

County Plan area (see separate discussion of water supply infrastructure impacts under WR-5 below).

Impact WR-5: Land uses and development consistent with the 2007 General Plan would increase the demand for water storage, treatment, and conveyance facilities that would have significant secondary impacts on the environment (Significant and Unavoidable Impact.)

2030 Planning Horizon

Impact of Development with Policies

The increased demand for water described under Impact WR-4 also creates a need for additional water storage, treatment capacity, and conveyance facilities. These facilities might include desalination plants, water treatment facilities, water recycling facilities, reservoirs, pipelines, pump stations, and new wells.

There will be secondary environmental impacts related to water infrastructure. New potable supplies are more likely to come from seawater desalination plants and from wastewater recycling in the short term but could also come from surface water diversions in the long-term.

Typically, water supply facilities would consist of treatment facilities, wells, wellhead facilities, intakes, pipelines, and storage reservoirs/tanks. The impacts of these facilities would vary greatly depending upon their size and location. Impacts may be related to, but not be limited to the following: loss or disturbance of biological resources, disturbance of cultural resources, visual impacts, operational noise, impacts related to geology and soils, flooding and water quality effects, and construction impacts (e.g., short-term traffic disruption, air quality emissions from equipment, noise, erosion/sedimentation, and utility disruption).

When specific facilities are proposed, they would be subject to CEQA review, and mitigation of any identified significant impacts would be required where feasible (Public Resources Code Section 21002).

Impacts of Regional Supply Projects

Salinas Valley

Salinas Valley Water Project—The SVWP (MCWRA and U.S. Army Corps of Engineers 2001) includes the following elements:

- Modification of the Nacimiento spillway to increase the spillway capacity and allow the reservoir to store a higher volume of water throughout the wet season.

- Reoperation of Nacimiento and San Antonio Reservoirs to allow for a greater level of groundwater recharge and to allow diversion of water at the lower Salinas River for direct delivery.
- Surface Diversion/Impoundment. A seasonal diversion structure would be constructed on the northern reach of the Salinas River to divert an average of 9,700 AFY for irrigation from April through October.
- Delivery. The diversion structure would be constructed near the current point where the CSIP pipeline crosses the Salinas River. The pipeline has sufficient capacity to deliver project water to the CSIP area also. Hydrologic modeling shows that the project may not halt seawater intrusion in the long-term future (year 2030). If this were to occur, additional distribution capacity will be created in a new pipeline and water would be delivered outside the CSIP area to ensure project objectives are met and seawater intrusion is halted.
- Pumping Limitations. In areas where project water is delivered, groundwater pumping would be limited to peaking capacity and deliveries during drought.

According to the SVWP Draft EIS/EIR (MCWRA and U.S. Army Corps of Engineers 2001), the project will result in the following significant and unavoidable impacts: Nacimiento Reservoir water level changes, which would affect sport fish reproduction and habitat; effects on aesthetic conditions at San Antonio and Nacimiento Reservoirs, as surface levels change substantially over the course of an average year; reduction in lake levels at Nacimiento and San Antonio Reservoirs (short and long term) to the degree that recreational opportunities are substantially affected during the peak recreation season; and short-term air quality (fugitive dust or PM_{10}) effects during construction of the spillway modifications (North Central Coast Air Basin) and project facilities (South Central Coast Air Basin).

Granite Ridge Distribution Facilities—The County of Monterey and the MCWRA are assessing potential solutions including new delivery infrastructure and financing options to provide additional water to the Granite Ridge area. Other agencies are also assessing the situation, including the Pajaro-Sunny Mesa Community Services District and the Pajaro Valley Water Management Agency. Pipeline construction would result in impacts on traffic, air quality, noise, soils and geology, and biological resources.

Monterey Peninsula/Seaside Aquifer

Coastal Water Project (Desalination)—An EIR is currently being prepared for the project under the auspices of the CPUC. The "Proponent's Environmental Assessment" (PEA) submitted to the

CPUC (RBF Consulting 2008) identified the following potential effects: potential for use of cooling water from the Moss Landing Power Plant to contaminate potable supplies; potential for the aquifer storage component to contaminate groundwater; visual impacts, including new sources of light and glare; potential to disturb undiscovered archaeological sites; air quality impacts from construction and operation; temporary and permanent impacts on biological resources; potential impacts from geologic and seismic hazards; potential release of hazardous materials; potential impacts from erosion and noise during construction; traffic impacts during construction; and potential to interrupt public utilities and services during construction. The PEA concluded that all potentially significant impacts would be reduced to a less-than-significant level with mitigation. However, the Draft EIR for this project has not yet been released. It is possible but not known if the EIR will ultimately conclude that there are significant and unavoidable impacts from this project.

Water for Monterey County's Regional Water Supply Program—The Monterey Regional Water Supply Program is proposed to provide up to 26,500 AFY to serve the water needs of northern Monterey County, including the Monterey Peninsula, the former Fort Ord, Marina, Castroville, and North Monterey County, including Moss Landing.

The components of the Project (RMC 2008) include the following:

- Expanded recycled water use, including expansion of existing recycled water agricultural irrigation project, groundwater replenishment, and urban recycled water use
- Stormwater collection and treatment
- Conservation
- Salinas River diversion and surface water treatment plant
- Brackish water desalination

A detailed program description was submitted for consideration by the CPUC in June 2008; the CPUC is analyzing the Coastal Water Project and may decide to analyze this program as an alternative to the CWP.

No environmental analysis has been completed for this program. Potentially significant impacts of the program may include, but are not limited to: water quality impacts of expanded recycled water use; impacts of new diversion on biological resources; physical impacts of new facilities on biological resources, cultural resources, soils and geology; direct and indirect impacts on agriculture due to water diversions, withdrawals, and treatment; construction impacts related to noise, air, and traffic; and other impacts.

Seaside Aquifer Storage Program—MPWMD is proposing to construct and operate an ASR project that would allow diversion of a limited amount of excess flow from the Carmel River for storage in, and later recovery from, the Seaside Groundwater Basin. The ASR project would divert up to 2,426 AFY from the Carmel River. Diversions would occur between December and May. The ASR would utilize new and existing water collection and conveyance facilities. New facilities include an MPWMD-owned injection/extraction well located on land currently owned and managed by the U.S. Army on the former Fort Ord and an MPWMD-owned pipeline connecting the injection/extraction well with the Cal-Am temporary pipeline located west of General Jim Moore Boulevard. No other new facilities would be constructed because the project would utilize the existing Cal-Am wells, pipelines, and pumping facilities that currently divert and transport water from the Carmel River.

A joint draft environmental impact report/environmental assessment (EIR/EA) was prepared in compliance with CEQA and NEPA, respectively (Jones & Stokes 2006). The final EIR/EA concluded that all potentially significant impacts of well and pipeline construction would be less than significant with mitigation (MPWMD 2006).

Pajaro Valley

Pajaro-Sunny Mesa Desalination Plant—The proposed Pajaro-Sunny Mesa desalination plant at Moss Landing would provide up to 21,000 AFY for agricultural use, as well as maintenance of the hydraulic barrier to seawater intrusion. The proposed plant is in the initial stages of permitting, so its date of availability is unknown. No environmental analysis has been completed for this project. Potentially significant impacts of the program are likely to be similar to the Coastal Water Project (but may be greater due to greater size) and may include, but are not limited to: potential for use of cooling water from the Moss Landing Power Plant to contaminate potable supplies; visual impacts; potential to disturb undiscovered archaeological sites; air quality impacts from construction and operation; temporary and permanent impacts on biological resources; potential impacts from geologic and seismic hazards; potential release of hazardous materials; potential impacts from erosion and noise during construction; traffic impacts during construction; and potential to interrupt public utilities and services during construction.

PVWMA's Basin Management Plan—The PVMWA Basin Management Plan calls for a series of strategies and projects to address current and future supply deficiencies including water conservation, water recycling, importation of water and groundwater

banking, associated coastal and inland distribution systems, and the already completed Harkins Slough and Murphy Crossing projects.

Additional water conservation measures are proposed for both urban and agricultural conservation and would not result in significant environmental impacts (PVWMA 2001).

The recycling component would involve construction of tertiary treatment facilities at the Watsonville Wastewater Treatment Facility (WWTF) and pumping, blending, storage, and distribution facilities. The recycled water would be used to offset a portion of the irrigation demands in the coastal area during the irrigation season. A 4,200-foot 24-inch-diameter pipeline to connect the Recycled Water Facility to the San Andreas and Springfield laterals of the Coastal Distribution System would also be required (PVWMA 2001).

The importation and groundwater banking component of the Basin Management Plan 2000 Alternative involves importing surface water from the Central Valley and using it in lieu of groundwater whenever it is available, allowing for natural recharge of the groundwater basin. During droughts and dry periods when little or no surface water may be available, Pajaro Valley would then pump the groundwater that was "saved" or "banked" during wet periods. This component includes construction of an inland distribution system and a pipeline (the Import Pipeline) to link the Pajaro Valley with the Santa Clara Conduit of the San Felipe Division facilities. The facilities associated with this component include the Import Pipeline, supplemental wells, and Inland Distribution System (PVWMA 2001). Importation of water from the Central Valley depends upon contracting with the U.S. Bureau of Reclamation and resolution of Central Valley water supply issues related to the Sacramento–San Joaquin Delta.

The EIR for the Basin Management Plan program identified significant impacts related to flooding, sedimentation and water quality during construction, biological resources, cultural resources, geological conditions, construction-period traffic, air quality, noise, visual aesthetics, and growth inducement. The significant impacts were found to be reduced to a less-than-significant level with identified mitigation except for the following significant and unavoidable impacts: loss of prime farmland, construction across active fault traces, construction criteria pollutant emissions, and secondary impacts due to growth (PVWMA 2001).

However, the EIR did not make any conclusions regarding the potential effects of additional diversions from the Sacramento–San Joaquin Delta. The EIR for the Basin Management Plan described that environmental evaluation of whether authorization of a contract between PVWMA and the U.S. Bureau of Reclamation for

importation of water would affect diversions from the Delta has to be deferred until PVWMA is able to pursue the contract (PVWMA 2001).

Impacts of Community Area Water Infrastructure

Table 4.3-12 summarizes water supply infrastructure issues affecting Community Areas. Note that these reports generally cover a wider service area than the proposed Community Area boundaries.

Table 4.3-12. Water Supply Infrastructure Summary for Community Areas

Community Area	Groundwater Basin	Water Supplier	General Facility/ Infrastructure Issues
Pajaro	Pajaro Valley basin	Pajaro/Sunny Mesa Community Services District	Upgrades needed (connection of Pajaro and Sunny Mesa systems for emergency backup; aging water mains and lateral lines; new tank and well planned).
Castroville	Salinas Valley basin (180-Foot/400-Foot Subarea)	Castroville Water District	Upgrades needed and planned (new tank and well replacement in 10 years). Applied to Local Agency Formation Commission to increase service boundary; if denied, growth will need to be served by private provider.
Boronda	Salinas Valley basin (180-Foot/400-Foot Subarea)	California Water Service Company, Salinas District	Upgrades needed and planned (treatment and well replacement due to nitrate, other contaminants, and aging). Adequate short-term supply; long-term supply likely to require additional water project.
Chualar	Salinas Valley basin (180-Foot/400-Foot Subarea)	Cal-Am Water Company, Monterey District	Current facilities reported as adequate.
Fort Ord	Salinas Valley basin (Seaside and Corral de Tierra Subareas)	Marina Coast Water District	Planned infrastructure capacity adequate.

New treatment, storage, and conveyance facilities and services would serve the Community Areas (where demand is expected to be greatest) and likely would be located in those areas. The impacts of these facilities would vary greatly depending upon their size and location. Impacts may include visual impacts, noise impacts, and construction impacts (e.g., short-term traffic disruption, air quality emissions from equipment, and noise). Site-specific and facility-specific information is not available; the significance of these impacts cannot be determined with certainty.

Pajaro—Planned growth in Pajaro would necessitate extension and/or upgrades of the community's water distribution system. According to the Pajaro/Sunny Mesa Community Service District MSR prepared in February 2006, infrastructure improvements are already needed for emergency contingency supply. The separate Pajaro and Sunny Mesa water systems need to be joined in order for either system to be able to rely on the other in the event of an emergency. A new tank and new well are also planned for the Pajaro Community Area to meet the demand for new growth, in addition to the replacement of aging water lines.

Castroville—Growth in Castroville would necessitate extension of existing water distribution facilities. According to the North County MSR, prepared in February 2006, seawater contamination has led the Castroville Water District to seal one of its wells in the upper screened area to extract solely from the lower aquifers. The Castroville Water District has planned to replace one well and add a new tank in the near future to meet 2007 General Plan growth demands. Potential impacts of these extensions would be identified in the environmental documents prepared for that work. As indicated in the North County MSR, the District has applied to LAFCO to increase its service boundaries. If denied, the District has indicated that additional growth would need to be served by a private water supplier.

Boronda—Redevelopment in the Boronda Community Area also would require new water distribution facilities. Cal-Water's UWMP indicates that, while short-term supply can be met from its central Salinas wells, long-term supply will require identification of a new water source from a yet-to-be-determined water project. District-wide, the company has planned treatment system improvements and 12 well replacements (due to nitrate contamination and aging) over the next 5 years. Cal-Water is also in the process of preparing a master plan to further identify capital improvements needed for future growth. Potential impacts of infrastructure improvements would be addressed within a Community Plan EIR or other public agency environmental analysis.

Chualar—Current facilities are reported as adequate.

Fort Ord—Planned infrastructure capacity is reported as adequate.

Impacts of Water Infrastructure for Rural Centers and Other Development

New treatment, storage, and conveyance facilities and services would also be needed for Rural Centers and likely would be located in or near those areas.

Water infrastructure for development on legal lots outside of the focused growth area would typically be onsite wells and treatment facilities but could also be distribution pipelines from the regional water systems. The

size and type of new facilities would depend on the size and location of the new development, and the availability of existing water supplies. Typically, water supply facilities consist of wells, wellhead facilities, pipelines, and storage reservoirs/tanks. The impacts of these facilities would vary greatly depending upon their size and location. Impacts may include visual impacts from large tank reservoirs, noise impacts if pumps are not located within a solid building, and construction impacts (e.g., short-term traffic disruption, air quality emissions from equipment, and noise). Site- and facility-specific information is not available; the significance of these impacts cannot be determined with certainty.

Impacts of Water Facilities for the AWCP and Agriculture

New water supply facilities would be needed to support the artisan and full-scale wineries and to support agriculture. These would typically be onsite wells and treatment facilities.

A portion of the water demand from these wineries would be met by existing water supply. The size and type of new facilities would depend on the size and location of the specific winery and the availability of existing water supplies. Where agriculture expands into new areas, new infrastructure would also be required to provide water supply.

Typically, water supply facilities for new wineries or expanded agricultural activity would consist of wells, wellhead facilities, pipelines, and storage reservoirs/tanks. The impacts of these facilities would vary greatly depending upon their size and location. Impacts may include visual impacts from large tank reservoirs, noise impacts if pumps are not located within a solid building, and construction impacts (e.g., short-term traffic disruption, air quality emissions from equipment, and noise). Site- and facility-specific information is not available; the significance of these impacts cannot be determined with certainty.

2007 General Plan Policies, Area Plan Policies, and Community Area Policies

The General Plan, Area Plan, and Community Area policies relative to water supply and water supply infrastructure are summarized above under Impact WR-4. Policies relative to secondary impacts on the physical environment (such as biological resources, prime farmland, cultural resources, or water quality) are discussed in the separate portions of the EIR concerning those resources.

Significance Determination

Implementation of the 2007 General Plan would increase demand for new or expanded water treatment, storage, and conveyance facilities.

New potable supplies for growth up to the 2030 planning horizon will come from the SVWP for the Salinas Valley and are likely to come from a combination of desalination plants, water recycling, water conservation, and aquifer storage and recovery in the Monterey Peninsula and Pajaro Valley. Proposed water supply projects (other than SVWP and the ASR) are in the planning and permitting stages. The environmental impacts of proposed supply infrastructure are being analyzed by the CPUC, MPWMD, and PVWMA and will be disclosed and mitigated as part of those CEQA processes. While mitigation can likely address most of the significant impacts identified for these projects and associated distribution facilities, not all significant impacts of large-scale water supply projects are likely to be mitigated to a less-than-significant level, and unavoidable impacts may occur.

New treatment, storage, and conveyance facilities and services would serve the Community Areas and Rural Centers, legal lot development, and agricultural and other uses. While mitigation can likely address most of the significant impacts identified for these facilities, it is possible that some significant impacts may not be feasibly mitigated to a less-than-significant level, and unavoidable impacts may occur.

Salinas Valley

The impacts of the SVWP have been disclosed and mitigated with adoption of the EIR/EIS prepared for that project by the MCWRA in 2002. As noted above, there will be certain significant and unavoidable impacts.

Extension of distribution lines from SVWP supplies to new residential, commercial, industrial, and agricultural uses will also result in environmental impacts due primarily due to construction. Extension of distribution pipelines to the Granite Ridge area will also have construction period impacts. Impacts of their construction will need to be assessed under CEQA at the point of their proposal and mitigated where feasible mitigation is available. It is possible, though unlikely, that the physical impacts of new distribution lines cannot be always mitigated to a less-than-significant level in all locations.

Monterey Peninsula

The impacts of the MPWMD ASR project were analyzed and found to be mitigable to a less-than-significant level.

The potential impacts of the Cal-Am Coastal Water Project facilities are being analyzed in the CEQA document being prepared under direction of the CPUC as part of the permitting process. The regional water supply program of the Water for Monterey Coalition may also be evaluated as part of the CEQA document. The same will be true of the desalination plant proposed by the Pajaro/Sunny Mesa Community Services District

if it is advanced. Feasible mitigation measures will be imposed on the projects that are selected and permitted.

At this point, the specific environmental impacts of all new water supply and distribution facilities on the Monterey Peninsula have not been fully analyzed. While many significant impacts can likely be mitigated to a less-than-significant level, it is possible that certain significant and unavoidable impacts may occur with their implementation.

Pajaro Valley

The Harkins Slough project and Murphy Crossing project have been completed. The Watsonville Water Recycling Project is currently in construction and mitigation was identified in the project EIR that would reduce most impacts to a less-than-significant level with the exception of impacts on prime farmland and secondary effects due to growth, which would be significant and unavoidable.

Although the PVWMA has long contemplated obtaining water from the State Water Project, as discussed above, that now appears to be infeasible. Were delivery to occur, it may result in unavoidable impacts on ESA-listed fish species. The PVWMA also identified significant and unavoidable impacts for the importation pipeline/groundwater banking project related to prime farmland, construction across active fault traces, construction air quality, and growth inducement.

If advanced, the desalination plant proposed by the Pajaro/Sunny Mesa Community Services District would need to be analyzed under CEQA for potential significant impacts and feasible mitigation measures imposed for significant impacts identified. While many significant impacts can likely be mitigated to a less-than-significant level, it is possible that certain significant and unavoidable impacts may occur with implementation.

Mitigation Measures

There are a numerous policies in the General Plan that address impacts from construction and operation of new infrastructure, including policies related to air quality, noise, geology, hydrology, cultural resources, biological resources, farmland, and traffic, among other subjects. Relevant mitigation in other sections of this EIR, such as for biological resources (BIO-1.1 through 1.5, 2.1, 2.2, 2.3, 3.1, and 3.2), air quality (AQ-1, 2, 3, 5, and 6), climate change (CC-1, 2, 5, and 13), and other resource impacts would also apply to new water supply infrastructure and would reduce further impacts. In many cases, the application of 2007 General Plan policies and the mitigation in this EIR would reduce secondary impacts of water supply infrastructure to a less-than-significant level.

A comprehensive list of applicable 2007 General Plan policies and applicable mitigation is not included here, but can be found in the 2007 General Plan and in the other EIR sections.

Significance Conclusion

Expanding or building new treatment, storage, and conveyance facilities will result in significant impacts on physical resources as discussed above. 2007 General Plan policies and resource mitigation identified in this EIR would reduce many of these impacts to a less-than-significant level. When specific facilities are proposed, they would be subject to CEQA review, and mitigation of any significant impacts that may be identified would be required where feasible (Public Resources Code Section 21002).

However, as shown in the completed CEQA evaluations for large-scale water supply and distribution projects (such as the SVWP or the PVWMA BMP), feasible mitigation is not always available to reduce all impacts to a less-than-significant level and thus this impact is disclosed as a significant and unavoidable impact.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan would require substantial numbers of additional water supply facilities. There are no specific water supply projects identified beyond the 2030 horizon. New infrastructure could include new desalination plants, water treatment plants, water recycling, facilities pipelines, reservoirs, tanks, and other elements. Impacts related to such facilities were discussed above for the 2030 planning horizon.

Significance Determination

At buildout in 2092, there would be nearly 36,000 more dwellings within the unincorporated county than existed in 2006. The specific locations of these future dwellings, their design, their relationship to other development and land uses, and the character of their surroundings cannot be accurately determined that far into the future. Future sources of water in 2092 are unknown and cannot be known at this time. Similarly, there is no information available about the locations of any other water supply facilities needed to meet 2092 demands, their physical characteristics, and their uses. Therefore, a discussion of their potential environmental impacts would be speculative, although their impacts are likely to be of a similar character as for currently proposed projects.

Mitigation Measures

The implementation of the proposed 2007 General Plan policies and existing regulations would reduce potential secondary impacts from new water supply facilities. Relevant mitigation in other sections of this EIR,

such as for biological resources, agriculture, and other resource impacts, would apply to new water supply mitigation and would, in many cases, reduce impacts to a less-than-significant level. Those measures are not listed in this section due to their length, but would apply.

Significance Conclusion

A second phase of the Salinas Valley Water Project is feasible, according to MCWRA. The secondary impacts of new infrastructure on biological resources and other subjects remains to be evaluated. The significance of secondary impacts due to construction and operation of this second phase is unknown, and they are thus considered significant and unavoidable for this EIR.

There are no current plans for acquiring new water supplies to meet the post-2030 long-term demand for the Monterey Peninsula or the Pajaro Valley. In theory, expansion of the currently proposed desalination, aquifer storage, water recycling, river diversion, and conservation projects could provide water for these areas, but conceptual proposals for after 2030 are not even under consideration at this time. Thus secondary impacts of infrastructure are unknown, and for this EIR, it is concluded that there would be significant and unavoidable secondary impacts related to water supply infrastructure on the Monterey Peninsula and in the Pajaro Valley portion of the North County Plan area.

New water supply facilities would be subject to review and mitigation under CEQA, and in many cases impacts can likely feasibly be mitigated to a less-than-significant level. However, as with many large-scale water supply projects, impacts cannot always be mitigated to a less-than-significant level. Therefore, this is disclosed as a significant and unavoidable impact.

Substantially Deplete Groundwater Supplies or Interfere with Recharge—Groundwater Level Decline and Overdraft

Impact WR-6: Land uses and development consistent with the 2007 General Plan would increase demand on groundwater supplies in some areas; the associated increased well pumping would result in the continued decline of groundwater levels and accelerated overdraft. (Significant and Unavoidable Impact.)

2030 Planning Horizon

Impact of Development with Policies

Groundwater is the primary water supply source for most of the county, including the Community Areas and Rural Centers, and most agricultural water uses. Ultimately, the sustainability of groundwater supplies requires

that the volume of water cumulatively drawn from an aquifer not exceed the volume of groundwater recharge. Typically, this balance needs to occur over a period of years, recognizing that periodic drought conditions and years of abundant rainfall are a part of the normal California weather pattern. As mentioned previously, there has been substantial historical overdraft of most of the county's major aquifers. If a water balance is not achieved and maintained over the long term, groundwater levels will continue to drop, resulting in the need to lower pumps, deepen wells, or drill new wells. Over time, groundwater supplies would be further depleted and local aquifers may no longer be a dependable source of water. Existing and future land uses (including development on lots of record in many of the unincorporated areas outside of the Community Areas and Rural Centers) are and will continue to be highly dependent on individual groundwater wells, as are small mutual or independent water companies relying on this resource as their primary source of water supply.

Once groundwater resources have been adversely affected (i.e., lowering of groundwater levels and intrusion of seawater), recovery is more difficult. Significant groundwater declines already have occurred in many areas of the county, resulting in seawater intrusion into coastal aquifers—including both of the productive 180- and 400-foot aquifers. Some groundwater level declines have occurred in the Deep Zone, and serious groundwater declines have occurred in the coastal zone of the North County area.

A further consequence of groundwater overdraft is the effect on aquatic habitats and CEQA-defined special-status species, such as steelhead, California red-legged frog, the Santa Cruz long-toed salamander, and California tiger salamander, among other species. Groundwater overdraft can dry creek channels, ponds, and wetlands where such water features are groundwater-supported, which can disrupt wildlife migration, movement, reproduction and foraging or can result in mortality in the case of fish. It can also result in saltwater intrusion, which is discussed below under Impact WR-7.

As discussed in the Setting section, many of the county's aquifers are in overdraft. All of the County's water management agencies are acutely aware of the need to reverse the serious overdraft trend and have developed groundwater management programs that, over time, will move toward sustainability. These include capital programs for better storage, treatment, and transportation of water; water conservation recycling and reuse; and development of new water supplies, including potential out-of-basin imports.

A major groundwater resource issue in Monterey County is the problem of seawater or saltwater intrusion. Heavy pumping of freshwater for irrigation has resulted in landward intrusion of brackish or saline water into formerly freshwater aquifers, especially where there are permeable sands and dune deposits next to the coast such as in the Pajaro, Castroville, and Seaside areas. Seawater intrusion was first observed in the coastal aquifers in the mid-1930s.

The protection of major groundwater recharge areas, for both recharge ability and water quality, is an important management tool for the sustainability of groundwater resources. Some areas of the county contain soils with high clay content that have poor infiltration and recharge characteristics or are underlain by hard bedrock formations that do not contain sizable groundwater bodies. In such areas, the majority of groundwater recharge occurs along streams. However, significant portions of major recharge areas consist of permeable soils overlying important regional aquifers. Major recharge areas typically are located along valley floors; some are located in the Community Areas where urban and suburban growth would occur. Urban development and the resultant increase in impervious cover over these recharge areas historically have reduced natural recharge opportunities in some areas. Implementation of the 2007 General Plan would result in construction of additional impervious surfaces, further reducing groundwater recharge.

Other important tools in groundwater management to achieve a long-term sustainable system and basin balance include significant reductions in demand due to increased water conservation and replacement of some groundwater usage with an increased groundwater management program focus on using treated, recycled water and desalinized seawater.

Although Monterey County has mandatory programs (water conservation ordinances) for urban water conservation—for instance, its low-flush toilet requirement for new development and retrofit program for certain types of remodeling projects—community education, outreach, and program enforcement have not been adequately funded. Clearly, more can be done to reduce urban water demand in many unincorporated parts of the county. Desalinization and use of recycled water are currently being explored at both the local and regional level by a number of water supply entities in the county. Although a well-coordinated and largely voluntary program for agricultural water conservation exists throughout most of the county, more also can be done to achieve increased agricultural water conservation through increased outreach, education, and coordination efforts by the County and by increased enforcement of existing agricultural water conservation regulations. This would require fully funding a water conservation program and providing adequate staff resources.

The SVWP will substantially reduce summer demand on groundwater resources in the Salinas Valley. This is expected to reduce or halt the seawater intrusion at its current line in the Castroville area. The SVWP, in conjunction with the Monterey County Water Recycling Projects, is expected to meet both urban and agricultural water needs in the Salinas Valley to 2030. (Monterey County Water Resources Agency 2001.)

Both Cal-Am and the MPWMD are working on obtaining new water supplies for the Monterey Peninsula, while at the same time reducing reliance on the Carmel River to levels authorized by the State Water Board. Their desalination projects are in the planning stage. These projects are designed

to reduce reliance on water from the Carmel River and the Seaside aquifer. When implemented, they are expected to avoid overdraft of the Seaside basin. Additionally, the CSIP is injecting recycled water into its underlying aquifer in order to halt seawater intrusion in the Castroville area. This also counteracts overdraft at the mouth of the Salinas River.

The Pajaro River IRWMP has identified a program for water supply and salt management. This includes the Watsonville Recycled Water Treatment Facility and Coastal Distribution System pipeline that are being installed in Santa Cruz County. These facilities will treat and distribute up to 4,000 AFYof recycled water to agricultural lands directly north of the Pajaro River. The PVWMA estimates that this new supply, combined with other sources, will provide almost one-quarter of the water needed to halt seawater intrusion in the Pajaro River basin. (Pajaro Valley Water Management Agency 2008c) Further, as discussed above, the Pajaro/Sunny Mesa Community Services District is pursuing a desalination plant at Moss Landing that would provide up to 21,000 AFY for groundwater recharge and maintenance of a hydrologic seawater intrusion barrier. Obtaining the outside supplies needed to halt overdraft in the Pajaro basin is not feasible, as discussed under Impact WR-4. Therefore, overdraft will continue during the 2030 planning horizon and beyond.

2007 General Plan Policies

The 2007 General Plan contains various policies addressing groundwater supply issues.

Public Services Element

Public Services Element Policy PS-2.2 (groundwater quality and groundwater monitoring) states that the Water Resources Agency shall assure adequate monitoring of wells in those areas experiencing rapid growth provided adequate funding mechanisms for monitoring are established.

Public Services Element Policy PS-2.6 requires the hydrologic resources constraints and hazards database to include identification and mapping of both prime groundwater recharge areas and hard rock areas with constrained groundwater in the County GIS.

Public Services Element Policy PS-2.8 requires that all projects be designed to maintain or increase the site's pre-development absorption of rainfall (minimize runoff) and to recharge groundwater where appropriate.

Public Services Element Policy PS-2.9 mandates that the County use discretionary permits to manage the construction of impervious surfaces in important groundwater recharge areas.

Public Services Element Policy PS-3.1 requires a long-term, sustainable water supply, both in quality and quantity, to serve development beyond the first single-family residence on any lot. This encourages efforts to improve sustainability by reducing overdraft.

Public Services Element Policy PS-3.3 (new development, surface water and groundwater supply) requires that specific criteria for proof of a long-term sustainable water supply for new residential or commercial subdivisions shall be developed. Criteria shall include but are not limited to:

a. Water quality

b. Production capability

c. Recovery rates

d. Effect on wells in the immediate vicinity

e. Existing groundwater conditions

f. Technical, managerial, and financial capability of the water purveyor of the water system

g. Cumulative impacts and planned growth in the area

h. Status and surety of planned new water supply projects including design, financing mechanism, and environmental review of the project

Public Services Element Policy PS-3.4 requires the County to develop criteria for the evaluation of all new wells, including capacity, recovery rate, effect on nearby wells, and existing groundwater conditions.

Public Services Element Policy PS-3.5 (groundwater wells, groundwater quality and groundwater quality) requires that pump tests or hydrogeologic studies be conducted for new high-capacity wells, including high-capacity urban and agricultural production wells, where there may be a potential to affect existing adjacent domestic or water system wells adversely as determined by the Monterey County Water Resource Agency. In the case of new high-capacity wells for which pump tests or hydrogeologic studies show the potential for significant adverse well interference, the County shall require that the well be relocated or otherwise mitigated to avoid significant well interference.

Public Services Element Policy PS-3.7 (groundwater supply and surface water supply) states that a determination of a long-term sustainable water supply

a. Shall not be based on hauled water

b. Should be determined on a basin-by-basin basis

Public Services Element Policy PS-3.9 requires an overdraft elimination program to be developed as part of the CIFP, to be evaluated every 5 years.

Public Services Element Policy PS-3.11 (new development, surface water supply and groundwater supply) states that a tentative subdivision map and/or vesting tentative subdivision map application for either a standard or minor subdivision shall not be approved until:

a. The applicant provides evidence of an assured long-term water supply in terms of yield and quality for all lots which are to be created through subdivision. A recommendation on the water supply shall be made to the decision making body by the Director of Health Services and the General Manager of the Monterey County Water Resources Agency, or their respective designees.

b. The applicant provides proof that the water supply to serve the lots meets both the water quality and quantity standards as set forth in Title 22 of the California Code of Regulations and County water systems and well regulations (Chapters 15.04 and 15.08 of the Monterey County Code, as may be periodically amended), subject to the review and recommendation by the Director of Health Services to the decision making body.

Public Services Element Policy PS-3.12 requires the County to establish an ordinance identifying conservation measures that reduce agricultural water demand.

Public Services Element Policy PS-3.13 mandates establishment of an ordinance identifying urban conservation measures that reduce potable water demand.

Public Services Element Policy PS-3.14 establishes strategies for maximizing the use of recycled water as a potable water offset to manage water demands and meet regulatory requirements for wastewater discharge.

Public Services Element Policy PS-4.4 encourages the use of reclaimed wastewater for groundwater recharge.

Public Services Element Policies PS-4.7 and PS-4.8 include groundwater recharge in criteria for assessing wastewater treatment facilities and septic systems, respectively.

Public Services Element Policy S-3.5 requires development of runoff performance standards for site planning and design techniques to capture runoff for use in groundwater recharge.

Area Plan Policies

Several Area Plan supplemental policies protect groundwater supply.

North County Area Plan

The North County Area Plan Policy NC-5.1 requires new development to maximize groundwater recharge capabilities. North County Area Plan Policy NC-5.2 (surface and groundwater water supply) states that water development projects that can offer a viable water supply to water-deficient areas in North County shall be a high priority.

Central Salinas Valley Area Plan

Policies CSV-1.1 and CSV-1.2 require comprehensive development plans for certain recreation and commercial land use projects to address water quantity and quality. Policy CSV-5.1 also protects groundwater recharge through preservation of riparian habitats and flood flow capacity along the main channels of the Arroyo Seco and Salinas Rivers. Policy CSV-5.2 requires identification and protection of areas valuable for both natural and artificial groundwater recharge, and requires that recreation and visitor-serving commercial uses prove no negative impact on groundwater quality.

Carmel Valley Area Plan

Policy CV-5.1 in the Carmel Valley Master Plan requires consideration of all beneficial uses of water resources in managing pumping from the Carmel River aquifer. Policy CV-5.3 requires incorporation of water reclamation and conservation development designs to create additional water for the area, and Policy CV-5.4 allows use of reclaimed water for some water sources as long as groundwater quality is not degraded.

Cachagua Area Plan

Cachagua Area Plan Policy CACH-5.1 protects the existing water supply by prohibiting export of groundwater outside the planning area.

South County Area Plan

South County Area Plan SC-5.1 and SC-5.3 each require new development to maximize groundwater recharge capabilities.

Community Area Policies

Fort Ord Master Plan

Fort Ord Master Plan Hydrology and Water Quality Policy A-1 requires new development to demonstrate measures to minimize runoff and maximize infiltration in groundwater recharge areas, including programs requiring the County to develop site drainage design and stormwater infiltration BMPs; to adopt and enforce a stormwater detention plan with design and implementation measures for all new development; and to prepare, adopt, and enforce a master drainage plan for the area based on the approved reuse plan. Hydrology and Water Quality Policy A-2 requires the County to protect groundwater recharge by ensuring that land use does not decrease flow magnitude and duration; corresponding Program A-2.1 requires the County to implement a stream-gauging program for creeks in the eastern part of the former Fort Ord. Hydrology and Water Quality Policy B-1 protects overall water supply by requiring the County to encourage and investigate additional water supply sources for critically deficient areas, including water importation, desalination, and reclaimed or recycled water sources. Hydrology and Water Quality Program C-3.1 (groundwater supply) establishes that the County shall continue to work with the MCWRA and the MPWMD to estimate the current safe yield within the context of the Salinas Valley Water Management Plan for those portions of the former Fort Ord overlying the Salinas Valley and Seaside groundwater basins to determine available water supplies. Hydrology and Water Quality Program C-3.5 (groundwater wells) states that the County shall carry out all actions necessary to ensure that the installation of water supply wells comply with the State of California Water Well Standards and well standards established by the Monterey County Health Department.

Significance Determination

Several 2007 General Plan and Area Plan policies seek to protect groundwater levels, with a special focus on protection of the deep productive aquifers in the Salinas Valley and Pajaro or North County area. Most notably, policies PS-3.1 and PS-3.3 will restrict development within the Community Areas, Rural Centers, and areas outside the Area Plans that restrict development to the first residential unit on existing lots of record until sustainable water supplies are available.

The SVWP is expected to halt further groundwater overdraft to 2030. The EIR/EIS prepared for the SVWP concluded in its analysis of the availability of urban and agricultural water supplies to 2030 that agricultural water demand will decrease with time as a result of changes in crops (with an assumption that vineyards will replace row crops) and management practices (better water conservation; Monterey County Water Resources Agency

2001). Implementation of the AWCP would depend on individual groundwater wells for its water; however, it would not substantially change the assumptions supporting the conclusions of the SVWP EIR/EIS. AWCP projects would be subject to regulation under 2007 General Plan Policies PS-3.1 (requiring proof of a long-term water supply), PS-3.4 (criteria for new wells), PS-3.5 (testing of new high-capacity wells), and PS-3.12 (conservation ordinance for agricultural use), among others. This would avoid groundwater overdraft as a result of new wineries and related facilities in the Salinas Valley during the planning period to 2030.

Separately, the activities of Cal-Am and the MPWMA on the Monterey Peninsula, and the SVWP and the Pajaro River IRWMP's projects in the Salinas River and Pajaro River basins would increase the supply available for domestic use, increase the supply of water available for summer recharge, and reduce demand for groundwater during those periods.

With implementation of mitigation measure MM WR-1, the Monterey Peninsula would maintain this impact at a less-than-significant level.

However, areas in North County in the Pajaro Valley watershed would not avoid significant and unavoidable groundwater impacts. Policies PS-3.1 and 3.3 would act to limit development within the Pajaro Community Area until a sustainable water supply can be assured. However, they would not apply to the many existing lots of record in those areas. As described above, no comprehensive solution to provide adequate water to avoid overdraft has been established in the Pajaro Valley.

Mitigation Measures

In addition to implementation of the 2007 General Plan policies and Area Plan policies, as well as ongoing programs that address groundwater overdraft within the County, the following mitigation measure would mitigate the impacts of new development, but not to a less-than-significant level in all parts of the county.

WR-1: Support a Regional Solution for the Monterey Peninsula in addition to the Coastal Water Project

This measure is described above.

Significance Conclusion

Within the Pajaro River basin, this impact would remain significant and unavoidable during the planning period.

Buildout

Impact of Development with Policies

Under 2092 buildout conditions, overall water demand would probably increase.

Although the SVWP EIR/EIS concluded that water demand would decrease over time within the Salinas River basin, that projection is limited to 2030 (Monterey County Water Resources Agency 2001). Beyond that time, assuming substantial population growth in the county's cities and urbanized communities, urban demand also would be expected to increase substantially, while agricultural demand may remain the same as projected for 2030, may increase, or may decrease. Current SVWP planning only extends to 2030; additional water supplies would be necessary to meet increased urban demand after 2030, or groundwater overdraft will return at that time.

Water demand will increase on the Monterey Peninsula beyond 2030 as well. The currently horizon for regional water supply is only up to 2030, and no planning extends beyond that point. Thus, even if regional solutions are found to Seaside Aquifer and Carmel River overdraft for 2030, overdraft conditions could return after that period without new supplies.

Water demand will increase in the Pajaro Valley beyond 2030 as well. Current planning is inadequate to reverse existing overdraft or projected demands to 2040. Thus overdraft conditions after 2030 will worsen compared to the period before 2030.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, as would the programs currently in various stages of planning by other agencies. It may be assumed that federal and state regulatory requirements would be at least as stringent as they are today. However, the very long-term future availability of surface water supplies in sufficient quantities to avoid groundwater overdraft is uncertain. Acquisition of additional supplies from outside the county is highly unlikely. The state and federal water projects are oversubscribed and, with continuing population growth statewide, that condition is unlikely to change by 2092. In addition, global climate change may have two future effects on the county's overdraft condition: sea level rise would exacerbate the seawater intrusion, making any groundwater withdrawals more critical to maintaining equilibrium; and variable rainfall may result in less water available to the Salinas, Pajaro, and Carmel Rivers, and other county streams and river systems in some years.

The MCWRA has opined that further actions can extend the supply available from the Salinas River system by 10,000 AFY. This would avoid increased overdraft.

The Seaside Aquifer is currently in overdraft. Current projects described above would address overdraft to 2030 but would not address water demands beyond 2030.

The Pajaro basin would be subject to development of the existing lots of record, as well as continued agricultural demand. Current planning is inadequate to address existing overdraft. With the Pajaro/Sunny Mesa Community Services District desalination plant in operation and dedicated entirely to the Pajaro Valley it might be possible to avoid overdraft up to around 2040, but beyond that overdraft conditions would return. Given the uncertainty about the desalination project, it is likely that overdraft conditions will only worsen after 2030, until a feasible new supply is found.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan policies, as well as the following mitigation measures, would mitigate the impacts of new development, but not to a less-than-significant level county-wide.

WR-1: Support a Regional Solution for the Monterey Peninsula in addition to the Coastal Water Project

This measure is described above.

WR-2: Initiate Planning for additional Supplies to the Salinas Valley

This measure is described above.

Significance Conclusion

A second phase of the Salinas Valley Water Project is feasible, according to MCWRA. From a groundwater point of view, implementation of Mitigation Measure WR-2 would mitigate the impacts of the 2007 General Plan buildout on overdraft to a less-than-significant level.

There are no current plans for acquiring new water supplies to meet the post-2030 long-term demand for the Monterey Peninsula or the Pajaro Valley. While discretionary development would be delayed until long-term water supplies are assured, non-discretionary development would exacerbate existing groundwater overdraft conditions. In theory, expansion of the currently proposed desalination, aquifer storage and recovery, water recycling, river diversion, and conservation projects could provide water for these areas to avoid overdraft, but conceptual proposals for after 2030 are not even under consideration at this time. Thus, this would be a significant and unavoidable groundwater overdraft impact on the Monterey Peninsula and in the Pajaro Valley portion of the North County Plan area.

Substantially Deplete Groundwater Supplies or Interfere with Recharge—Saltwater Intrusion

Impact WR-7: Land uses and development consistent with the 2007 General Plan would increase demand on groundwater supplies in areas currently experiencing or susceptible to saltwater intrusion. Increased groundwater pumping in certain coastal areas would result in increased saltwater intrusion. (Significant and Unavoidable Impact.)

2030 Planning Horizon

Impact of Development with Policies

Seawater intrusion is an existing and ongoing problem, as well as an increasing threat to groundwater quality, with implementation of the 2007 General Plan and continued reliance on groundwater as the primary water source. It is already one of the most significant groundwater management issues in the coastal part of Salinas Valley and the Pajaro Valley/North County area. Seawater intrusion can disrupt water supply to urban uses and agriculture, compromise water quality and result in the demand for additional treatment facilities which can have secondary physical impacts of their own.

A further consequence of seawater intrusion is the effect on freshwater aquatic habitats and CEQA-defined special-status species, such as California red-legged frog, the Santa Cruz long-toed salamander, and California tiger salamander, among other species. Many freshwater amphibians, including these three species, cannot tolerate increased salinity levels and thus seawater intrusion can completely prevent reproduction of these species in affected wetlands, creeks, or ponds. Such breeding disruption for the Santa Cruz long-toed salamander has been reported by the U.S. Fish and Wildlife Service in aquatic areas near Elkhorn Slough (USFWS 2006). Further, most freshwater riparian and wetland vegetation cannot tolerate increased salinity; loss of such vegetation would affect an even wider range of CEQA-defined special-status species and common species dependent on riparian and wetland habitats.

Seawater intrusion occurs in areas where groundwater wells pump from aquifers that are hydraulically connected to the Pacific Ocean, inducing gradients that cause the migration of saltwater toward the wells and inland up the valley aquifers, contaminating groundwater supplies. Activities that reduce reliance on groundwater (thereby reducing groundwater pumping) or that provide for groundwater recharge, particularly adjacent to the seawater intrusion line also retard the advance of seawater intrusion.

The 2007 General Plan would allow development in Community Areas, in Rural Centers, and on legal lots of record in these affected areas—with associated groundwater pumpage contributing to the ongoing, cumulative

saltwater intrusion problem. Outside the PVWMA jurisdictional area, new agricultural wells also can be brought into production with few restrictions on groundwater pumpage (other than on well construction standards and usage reporting requirements). Larger development projects on individual or new small community system wells would be subject to issuance of discretionary permits and thus CEQA review, which would provide a means for addressing the potential for saltwater intrusion and the application of appropriate use restrictions. However, smaller projects in conformance with the land use plan and zoning code would likely not require discretionary review and approval.

As discussed in the last section, both Cal-Am and the MPWMD are working on projects to reduce reliance on groundwater in the Seaside basin, thereby halting seawater intrusion. The Pajaro River IRWMP is undertaking a collaborative and comprehensive program to address intrusion within the Pajaro River basin. The SVWP currently under construction would provide additional seasonal water that would halt seawater intrusion in the Salinas River basin.

2007 General Plan Policies

Seawater intrusion is caused by using groundwater in excess of the recharge capacity of the groundwater basin. The following proposed 2007 General Plan policies would improve recharge capacity during the planning horizon.

Public Services Element

Public Services Element Policy PS-2.6 requires the hydrologic resources constraints and hazards database to include identification and mapping of both prime groundwater recharge areas and hard rock areas with constrained groundwater in the County GIS.

Public Services Element Policy PS-2.8 requires that all projects be designed to maintain or increase the site's predevelopment absorption of rainfall (minimize runoff) and to recharge groundwater where appropriate.

Public Services Element Policy PS-2.9 mandates that the County use discretionary permits to manage construction of impervious surfaces in important groundwater recharge areas.

Public Services Element Policy PS-3.3 requires the County to establish criteria to ensure long-term sustainable water supply for new residential and commercial subdivisions. These criteria are to include production capability, recovery rates, well effects, and groundwater conditions for new development.

Public Services Element Policy PS-3.4 requires the County to develop criteria for the evaluation of all new wells, including capacity, recovery rate, effect on nearby wells, and existing groundwater conditions.

Public Services Element Policy S-3.5 requires the development of runoff performance standards for site planning and design techniques to capture runoff for use in groundwater recharge.

Public Services Element Policy PS-3.6 requires that the County and all applicable water management agencies shall not allow the drilling or operation of any new wells in known areas of saltwater intrusion as identified by the MCWRA until such time as a program has been approved and funded that would minimize or avoid expansion of saltwater intrusion into useable groundwater supplies in that area.

Public Services Element Policy PS-3.9 requires an overdraft elimination program to be developed as part of the CIFP, to be evaluated every 5 years.

Public Services Element Policy PS-3.12 requires the County to establish an ordinance identifying conservation measures that reduce agricultural water demand

Public Services Element Policy PS-3.13 mandates establishment of an ordinance identifying urban conservation measures that reduce potable water demand.

Public Services Element Policy PS-3.14 establishes strategies for maximizing the use of recycled water as a potable water offset to manage water demands and meet regulatory requirements for wastewater discharge.

Public Services Element Policy PS-4.4 encourages the use of reclaimed wastewater for groundwater recharge.

Public Services Element Policies PS-4.7 and PS-4.8 include groundwater recharge in criteria for assessing wastewater treatment facilities and septic systems, respectively.

Area Plan Policies

While no Area Plans specifically address saltwater intrusion, supplemental policies related to groundwater would also help to mitigate this impact.

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-1.8 (water quality, groundwater quality, new development, Salinas River, riparian corridor) allows for the land near the town of Spreckels designated as industrial to be developed partially or wholly as agriculturally related commercial uses provided said agriculturally related development complies with, among others, the following conditions:

a. Development shall be designed to protect and, where feasible, enhance the riparian corridor along the Salinas River.

b. Proposed development would not deteriorate water quality in the Salinas River or area ground water.

Greater Salinas Area Plan Policy GS-5.1 (Gabilan Creek, riparian corridor, flood hazard) calls for portions of Gabilan Creek to be evaluated for a linear park as defined by the County's Parkland Classification System at such time when the County can support another regional park. Until such time, Gabilan Creek shall be:

a. maintained in a natural riparian state;

b. kept in a free-flow state devoid of dams;

c. allowed its natural flood capacity through required setbacks conforming to the 100-year-flood plain; and

d. kept free from urban encroachment by residential development through required dedication of land in the floodplain corridor.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policy CSV-5.2 (a. groundwater recharge, b. new development, c. floodways, d. new development, groundwater quality/quantity, e. septic, f. stormwater, erosion) requires that recreation and visitor-serving commercial uses shall only be allowed if it can be proven that:

a. areas identified by the Water Resources Agency as prime-groundwater recharge areas can be preserved and protected from sources of pollution as determined by the Director of Environmental Health and the Water Resources Agency;

b. proposed development can be phased to ensure that existing groundwater supplies are not committed beyond their safe, long-term yields where such yields can be determined;

c. floodways associated with the main channels of either the Arroyo Seco River or the Salinas River will not be encroached on by development because of the necessity to protect and maintain these areas for groundwater recharge, preservation of riparian habitats, and flood flow capacity as determined by the Water Resources Agency;

d. the proposed development meets both water quality and quantity standards expressed in Title 22 of the California Code of Regulations and Title 15.04 of the Monterey County Code as determined by the Director of Environmental Health;

e. the proposed development meets the minimum standards of the Regional Water Quality Control Basin Plan when septic systems are proposed and also will not adversely affect groundwater quality, as determined by the Director of Environmental Health; and

f. the proposed development will not generate levels of runoff which will either cause erosion or adversely affect surface water resources as determined by the Water Resources Agency.

Central Salinas Valley Area Plan Policy CSV-5.3 (Drainage Management Plan) explains that prior to new development, other than those consistent with the underlying land use designation, in the Spence/Potter Road study area, a drainage management plan to mitigate runoff to adjoining farmlands for the entire study area must be developed.

Carmel Valley Area Plan

Carmel Valley Master Plan Policy CV-5.4 (water reclamation, conservation) ensures that the County shall establish regulations for Carmel Valley that limit development to vacant lots of record and already approved projects, unless additional supplies are identified. Reclaimed water may be used as an additional water source to replace domestic water supply in landscape irrigation and other approved uses provided the project shows conclusively that it would not create any adverse environmental impacts such as groundwater degradation.

South County Area Plan

South County Area Plan Policy SC-5.1 (new development and groundwater recharge) establishes that new development shall not diminish the groundwater recharge capabilities in the South County Planning Area where the following resources have been identified:

a. Valuable natural groundwater recharge areas, or

b. Artificial groundwater recharge projects.

Areas that are highly susceptible to water quality degradation because of either high water tables or rapid percolation rates shall require more strict enforcement of this policy. Agricultural land uses in such areas should be maintained to preserve groundwater quality.

Community Area Policies

Fort Ord Master Plan

The Fort Ord Master Plan contains a policy and programs specifically addressing seawater intrusion. Hydrology and Water Quality Program A-1.2 (stormwater detention and groundwater recharge) requires that the County shall prepare, adopt, and enforce a stormwater detention plan that identifies potential stormwater detention design and implementation measures to be considered in all new development, in order to increase groundwater recharge and thereby reduce potential for further seawater intrusion and provide for an augmentation of future water supplies.

Hydrology and Water Quality Policy C-3 requires County cooperation with the MCWRA and MPWMD to mitigate further seawater intrusion (based on the Salinas Valley Basin Management Plan), including programs to estimate current safe yield, determine the extent of seawater intrusion, implement mitigation measures, develop additional water supply sources, adopt and enforce a water conservation ordinance, ensure that installation of supply wells comply with the State of California Water Well Standards, and ensure that water distribution and storage comply with State Health Department regulations through Title 22. Hydrology and Water Quality Program C-3.2 (seawater intrusion) specifically calls for the County to work with the MCWRA and MPWMD to determine the extent of seawater intrusion into the Salinas Valley and Seaside groundwater basin within the context of the Salinas Valley Water Management Plan and requires that the County shall participate by implementing measures to prevent further intrusion.

Significance Determination

New and existing nondiscretionary land use and development entitlements would result in increased seawater intrusion associated with agricultural well development, low-density development, and urban development within the Pajaro basin and North County. Limited development potential in the Seaside basin (due to current restrictions on new water connections) would avoid this impact in the short run, and new desalination projects in the planning stages by Cal-Am and the MPWMD would halt any potential intrusion during the 2030 planning horizon, avoiding this impact. However, other areas face challenges in halting seawater intrusion. Seawater intrusion will be controlled in the Salinas Valley through the SVWP to 2030. Mitigation Measure WR-1, in conjunction with the Coastal Water Project, would avoid a significant impact from seawater intrusion on the Monterey Peninsula.

A solution for the Pajaro basin is not available. Although several 2007 General Plan policies would assist in managing wells in areas where seawater

has intruded into groundwater, a feasible comprehensive solution to the Pajaro Valley seawater intrusion has not been advanced at this time.

Mitigation Measures

New and existing non-discretionary land use and development entitlements would contribute to the ongoing, cumulative saltwater intrusion problem in Monterey County. Implementation of the 2007 General Plan goals and policies and supplemental Area Plans would reduce this impact, but not to a less-than-significant level in all parts of the county.

WR-1: Support a Regional Solution for the Monterey Peninsula in addition to the Coastal Water Project

This measure is described above.

Significance Conclusion

The SVWP and CISP appear to be sufficient to halt seawater intrusion in the Salinas River basin during the planning horizon. Similarly, the desalination projects will avoid future intrusion in the Seaside basin. In those areas, the impact of the project would be less than significant.

In the Pajaro Valley, this impact is considered significant and unavoidable due to the lack of an established feasible comprehensive solution to address existing sweater intrusion as well as future water demands.

Buildout

Impact of Development with Policies

Buildout would result in additional development within the planning area beyond that projected for the 2030 planning horizon. Further development in Community Areas, Rural Centers, and affordable housing overlay areas would increase water demands that would not be met by current water supply planning, which only has a horizon of 2030; thus new demands may exacerbate seawater intrusion.

The addition of dispersed low-density development on the existing lots of record would result in additional water wells throughout the county. Despite 2007 General Plan policies limiting new wells and encouraging groundwater recharge, the potential for overdraft and the resultant seawater intrusion would increase.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, as would the programs currently in various stages of planning by other agencies. These policies would act to reduce the potential impact of new

water wells. However, the very long-term future availability of surface water supplies in sufficient quantities to avoid seawater intrusion is uncertain. Acquisition of additional supplies from outside the county is unlikely, barring some unforeseen new source of water. The state and federal water aqueducts are oversubscribed and, with continuing population growth statewide, that condition is unlikely to change by 2092. In addition, sea level rise as a result of global climate change would exacerbate the seawater intrusion, making any groundwater withdrawals more critical to maintaining equilibrium. In addition, unpredictable year-to-year variations in rainfall may result in less surface water available to the Salinas and Pajaro Rivers to recharge groundwater and keep seawater out of the aquifers. If that is the case, the impact will be significant and unavoidable.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan policies, ongoing programs that address groundwater overdraft within the County, and the following mitigation measures would mitigate the impacts of new development on seawater intrusion, but not to a less-than-significant level.

WR-1: Support a Regional Solution for the Monterey Peninsula in addition to the Coastal Water Project

This measure is described above.

WR-2: Initiate Planning for additional Supplies to the Salinas Valley

This measure is described above.

Significance Conclusion

A second phase of the Salinas Valley Water Project is feasible, according to MCWRA. From a seawater intrusion point of view, implementation of Mitigation Measure WR-2 would mitigate the impacts of the 2007 General Plan buildout to a less-than-significant level.

There are no current plans for acquiring new water supplies to meet the post-2030 long-term demand for the Monterey Peninsula or the Pajaro Valley. While discretionary development would be delayed until long-term water supplies are assured, non-discretionary development would exacerbate existing seawater intrusion conditions. In theory, expansion of the currently proposed desalination, aquifer storage and recovery, water recycling, river diversion, and conservation projects could provide water for these areas to avoid seawater intrusion, but conceptual proposals for after 2030 are not even under consideration at this time. Thus, this would be a significant and unavoidable seawater intrusion impact on the Monterey Peninsula and in the Pajaro Valley portion of the North County Plan area.

Violate Water Quality Standards—Wastewater Disposal

Impact WR-8: Land uses and development consistent with the 2007 General Plan would result in sewer- and septic-related water quality impacts, including those associated with reuse of treated water and migration of septic tank leachfield wastewater effluent to groundwater that would violate water quality standards. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Conventional wastewater treatment plant discharges, package treatment plant discharges, and failing septic systems would violate water quality standards or WDRs, or both. All of Monterey County's treatment plants, including those operated by municipalities or wastewater management districts, are regulated under a WDR permit issued by the Central Coast RWQCB. The County would be responsible for the water quality of wastewater discharges associated with the plants it operates. In cases where the plants are not directly operated by the County, the County's role would be one of cooperation and coordination with the plants. Water quality problems associated with point source discharges from wastewater treatment plants historically (over the last 10 years) have been infrequent.

The regulation of privately operated package wastewater treatment plants in the county would be more difficult because the financial responsibility for plant operation, maintenance, and potential Central Coast RWQCB penalties would be in the hands of private districts or property owners, such as homeowners associations. Private owners may lack the financial resources to address water quality and maintenance problems when they arise.

Water quality also would be affected by the reuse of treated wastewater from sewer plants for agriculture and landscaping, and as a replacement for other non-potable water demands. Such reuse is a major focus of the County's long-term effort to bring water usage more in line with sustainable water supply. Depending on the extent of treatment that is applied to the wastewater, over-application would result in excessive runoff entering waterways, or leaching of constituents contained in the wastewater (such as salts, nutrients, estrogenic substances, and pharmaceuticals) to the groundwater.

Individual septic systems (i.e., Onsite Wastewater Treatment Systems) serving individual residences also would degrade water quality. This is of particular concern in areas where historical development on small lots has resulted in a high concentration of older septic systems that may not have been designed and constructed using current standards or that are not regularly maintained or upgraded. Nitrate contamination of groundwater is a

concern in these areas (such as the North County), especially in areas of permeable soils and relatively shallow groundwater.

2007 General Plan Policies

The 2007 General Plan contains goals and policies addressing water quality issues related to wastewater disposal. A number of these policies discourage the use of individual septic systems in favor of community systems that are subject to a higher level of regulatory supervision.

Public Services Element

Public Services Element Policy PS-2.6 includes mapping of areas with severe septic tank leachfield suitability constraints via a Hydrologic Resources Constraints and Hazards Database .

Public Services Element Policy PS-4.1 (wastewater treatment) ensures that adequate wastewater treatment facilities shall be assured concurrent with new development.

Public Services Element Policy PS-4.2 (new development and wastewater treatment) requires that developers shall construct or contribute their fair share to the funding of new or expanded wastewater treatment facilities needed to serve their development.

Public Services Element Policy PS-4.3 (new development and wastewater treatment) establishes that all available public and private financing sources and techniques to fund wastewater treatment facilities shall be pursued.

Public Services Element Policy PS-4.4 (groundwater recharge and wastewater treatment) encourages groundwater recharge through the use of reclaimed wastewater, not including primary treated wastewater, in accordance with federal, state, and local laws, regulations and ordinances. This prohibits unregulated discharges.

Public Services Element Policy PS-4.5 (new development and wastewater treatment) ensures that new development proposed in the service area of existing wastewater collection, treatment and disposal facilities should seek service from those facilities unless it is clearly demonstrated that the connection to the existing facility is not feasible.

Public Services Element Policy PS-4.6 (new development and wastewater treatment) requires that new independent wastewater treatment facilities should not be allowed unless it is clearly demonstrated that connection to a regional facility is not feasible.

Public Services Element Policy PS-4.7 requires development of water quality criteria for new wastewater treatment facilities.

Public Services Element Policy PS-4.8 requires development of several criteria for septic disposal systems to protect water quality.

Public Services Element Policy PS-4.9 (new development, wastewater treatment and agency coordination) ensures that the adequate provision of new or expanded wastewater treatment facilities that meet RWQCB waste discharge requirements shall be assured to the satisfaction of the County and RWQCB prior to the approval of new residential subdivision maps or zone changes.

Public Services Element Policy PS-4.10 requires County development of an alternative wastewater system management program, consistent with the regulations pursuant to AB 885, to administer and monitor the use of alternative wastewater systems.

Public Services Element Policy PS-4.11 encourages all new wastewater treatment facilities to use tertiary treatment standards to minimize water quality impacts.

Public Services Element Policy PS-4.12 (North County, Carmel Valley, wastewater treatment, and new development) states that the County Health Department, Environmental Health Division, shall develop On-site Wastewater Management Plans (OWMP) for areas with high concentrations of development that are served primarily by individual sewage systems such as North County and Carmel Valley. Wastewater treatment and disposal for community areas and rural centers shall be through the consolidation of services into regional or subregional facilities. Subdivisions shall be required to consolidate wastewater collection, treatment, and disposal systems of services, connecting to existing systems where feasible. The County shall not allow the use of package plants when connection to a regional facility is feasible.

Area Plan Policies

Some of the Area Plans include policies that specifically address wastewater and water quality issues.

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-1.1 (drainage ponds and wastewater facilities) establishes that in the Butterfly Village Special Treatment Area approximately 671 acres located north of San Juan Grade Road and east of Harrison Road (113-271-014-000, 113-212-043-000, 113-212-044-000, 113-212-004-000, 113-212-003-000, 113-212-055-000, 113-212-056-000, 113-212-057-000 and 113-212-

058-000) shall be designated as a "Special Treatment Area" to permit a planned development including the following:

- Public park including trails, public parking, and a series of drainage ponds.
- Public facilities, including fire/sheriff substation, maintenance yard, wastewater treatment facility, and an elementary school site with athletic fields.

Central Salinas Valley Area Plan

Policy CSV-5.2 requires any recreation and visitor-serving commercial development to meet minimum basin plan standards where septic systems are proposed.

Carmel Valley Master Plan

Carmel Valley Master Plan Policy CV-5.5 requires completion of geologic and soil investigations for development projects using onsite septic systems, as well as overall review in accordance with standards of the Carmel Valley Wastewater Study. Policy CV-1.8 requires clustered development to be consistent with the Carmel Valley Wastewater Study by limiting development to five units or less on a minimum of 5 acres of land.

Toro Area Plan

Policy T-5.1 of the Toro Area Plan encourages development in areas that can be served by wastewater treatment facilities to ensure adequate wastewater treatment.

Community Area Policies

Fort Ord Master Plan

Fort Ord Master Plan Hydrology and Water Quality Policy C-5 requires the County to support all actions necessary to ensure that sewage treatment facilities comply with Central Coast RWQCB WDRs, and Policy C-7 requires all development plans to verify adequate wastewater treatment capacity.

Significance Determination

Implementation of the 2007 General Plan policies would promote the use of wastewater collection and treatment systems, as well as establish comprehensive standards for septic and alternative wastewater systems (including recycling of treated wastewater). These requirements would apply to individual lots of record, major and minor subdivisions, Community Areas, and Rural Centers. In addition, the County approval process for

discretionary projects, which include proposed new or expanded community water supply and wastewater disposal systems, would require preparation and submittal of a technical, managerial, and financial (TMF) capacity analysis, demonstrating that such proposed systems have not only available capacity, but also the institutional capability to provide the services on a long-term, sustainable basis. Further, Policy PS-4.10 requires County development of an alternative wastewater system management program, consistent with the regulations pursuant to AB 885 and Central Coast RWQCB requirements.

New wineries and related facilities under the AWCP generally would use septic systems for wastewater disposal. However, the AWCP boundary primarily encompasses agricultural lands in the Salinas Valley, where nitrate contamination from septic systems is not a problem because these systems tend to be dispersed widely and not concentrated in any one area. Policy PS-4.10 would ensure that new septic systems do not exacerbate nitrate pollution in groundwater sources. In addition, disposal systems would be subject to permit by the Central Coast RWQCB, which would regulate their discharges to protect water quality.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies would reduce impacts on water quality associated with wastewater systems to a less-than-significant level. No mitigation is required.

Significance Conclusion

The water quality impacts from wastewater systems would be less than significant.

Buildout

Impact of Development with Policies

Buildout would result in a more extensive development pattern than currently exists. Assuming that future development follows the basic spirit of the 2007 General Plan policies, most urban development would be focused in the cities, Community Areas, and Rural Centers. However, because the buildout scenario assumes that existing lots of record would be developed with a single-family residence, there would be substantial low-density development spread across the county. This would increase the potential for water quality impacts resulting from the failure of individual onsite wastewater treatment systems.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would

be at least as stringent then as they are today. With most development centered around population centers and served by wastewater treatment plants, these policies and regulations would be effective in avoiding water quality impacts. Individual systems would presumably be built at a higher standard than today, given the steady evolution of regulatory stringency. As an example of evolving stringency, note that the State Water Board is currently in the process of considering new regulations for the permitting and operation of onsite wastewater treatment systems. This would ensure consistent standards and oversight. Given the time span until buildout, none of today's individual systems would remain in operation through 2092. Therefore, future water quality impacts from wastewater systems would be less than significant.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies, along with continued implementation and evolution of federal and state standards, would reduce impacts on water quality associated with wastewater systems to a less-than-significant level. No mitigation is required.

Significance Conclusion

Future water quality impacts from wastewater systems would be less than significant.

Substantially Deplete Groundwater Supplies or Interfere with Recharge—Well Competition and Adverse Well Interference

Impact WR-9: Land uses and development consistent with the 2007 General Plan would result in an increase in the number of private wells in unincorporated areas of the county. Approval of wells in these areas would result in well interference impacts. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Groundwater wells close or adjacent to each other can be thought of as competing for the same groundwater resource, especially in areas where the availability of groundwater is limited; in areas of declining groundwater and overdraft conditions; and in areas of poorly producing aquifer materials, such as hard-rock aquifers. When a well is pumped, a portion of the aquifer around it is dewatered or lowered, creating what is known as a cone of depression. Adjacent wells with overlapping cones of depression may have problems getting water if water levels are lower than the well pumps. Where

such competition is significant, it may affect the performance and delivery of water to the adjacent wells. This condition is referred to as well interference. Most well interference problems are localized and of short duration, but being without water is a major inconvenience and can damage well pumps. In some instances, individual landowners are forced to deepen their wells or lower the pumps to accommodate the localized lowering of groundwater levels due to well interference. Over the long term, high-capacity wells can substantially lower groundwater levels locally, essentially extending the time duration of the cone of depression and enlarging its outward extent.

Potential adverse well interference effects often can be anticipated by a review of adjacent well logs and local hydrogeologic data. Where such interference is thought to be a potential concern, pump tests can be conducted on test wells located in the vicinity of the proposed well. Water levels in the pumping well and nearby wells are monitored and mathematically analyzed using well hydraulic principles to verify and determine the probable extent and significance of the effect and to develop appropriate mitigation and management strategies.

The current County well ordinance (Chapter 15.08 of the Monterey County Code) does not require the completion of hydrogeologic studies for all groundwater wells. Hydrogeologic studies and pump tests of potential well interference impacts may be required by the MCHD in areas with known groundwater supply and quality problems, and the Environmental Health Division often will consult with the appropriate water agencies (MCWMA, MPWMD, PVWMA) in association with the discretionary review of development projects. Generally, however, development of individual parcels on lots of record, including small businesses and residences, if consistent with the General Plan and Zoning Code, do not require discretionary approval and typically would not be required to conduct pump tests or hydrogeologic studies.

2007 General Plan Policies

In addition to the general groundwater supply policies discussed under Impact WR-6, the 2007 General Plan contains policies specifically addressing well competition.

Public Services Element

Public Services Element Policies PS-3.1 and PS-3.3 require a long-term, sustainable water supply, both in quality and quantity, to serve development beyond the first single-family residence on any lot and commit the County to developing specific criteria for proof of a long-term sustainable water supply for new residential or commercial subdivisions. The criteria will include production rate, recovery ability, effects on nearby wells, and existing groundwater conditions.

Public Services Element Policy PS-3.4 further requires that the County develop new criteria for the evaluation of all new wells, including production rate, recovery ability, effects on nearby wells, and existing groundwater conditions.

Public Services Element Policy PS-3.5 requires preparation of pump tests or hydrogeologic studies for new high-capacity urban and agricultural wells with the potential to affect existing adjacent domestic or water system wells. Where pump tests or hydrogeologic studies show the potential for significant adverse well interference, the County shall require that the well be relocated or otherwise mitigated to avoid significant well interference.

Area Plan Policies

No Area Plans specifically address well competition and interference. The previously discussed supplemental policies related to groundwater levels (see the discussion under Impact WR-6) would help to mitigate this impact by ensuring an adequate water supply in general.

Community Area Policies

Fort Ord Master Plan

Hydrology and Water Quality Program C-3.5 (groundwater wells) states that the County shall carry out all actions necessary to ensure that the installation of water supply wells comply with the State of California Water Well Standards and well standards established by the Monterey County Health Department.

Significance Determination

As described above, the proposed 2007 General Plan includes substantive policies addressing potential well interference, establishing and implementing well setback requirements and standardized evaluation criteria for evaluating wells in order to adequately address these impacts.

Mitigation Measures

Implementation of the 2007 General Plan policies, along with continued implementation of state well standards, would reduce new impacts from well interference to a less-than-significant level. No mitigation is required.

Significance Conclusion

This impact would be less than significant.

Buildout

Impact of Development with Policies

Buildout would see a substantial increase in the county's population, particularly within its cities and communities. This would increase the potential for well competition and adverse interference.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092. Although these policies avoid competition and interference under currently projected conditions, the very long-term future availability of surface water supplies or conjunctive supplies in sufficient quantities to avoid competition for groundwater is uncertain. Global climate change is resulting in sea level rise, which in turn impedes efforts to stem seawater intrusion. Increased rainfall variability may result in less surface water available to the Salinas River and Pajaro River watersheds to recharge groundwater and keep seawater out of the aquifers. This would make competition for groundwater unavoidable whenever new wells were drilled.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan policies, as well as ongoing programs that address groundwater competition within the county, would mitigate the impacts of new development, but not to a less-than-significant level.

Significance Conclusion

Conservatively viewed, based on expectations for future sea level rise, the very long-term impact would be significant and unavoidable.

Substantially Alter Existing Drainage Patterns—Increased Runoff and Streambank Erosion

Impact WR-10: Land use and development consistent with the 2007 General Plan would result in alterations to existing drainage patterns. Such changes would increase erosion, both in overland flow paths and in drainage swales and creeks. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Alterations to drainage patterns during and following construction have the potential to result in construction-related increased runoff and erosion problems (see Impact WR-2).

Land uses and development consistent with the 2007 General Plan would result in a gradual increase in impervious cover, especially in developing Community Areas and in some of the Rural Centers, but also from the development of individual lots. Typically, increases in impervious cover result in an increase in stormwater runoff, higher peak stream discharges, and decreased groundwater recharge. Agricultural land use practices also can alter the infiltration properties of surface soils (sometimes beneficially) and can result in similar, but more often smaller, effects on the hydrologic cycle. Increased peak discharges resulting from changes in land use have the potential to degrade water quality by creating erosive velocities and higher bank shear stress, which ultimately can cause bank and bed erosion and sedimentation in drainages and streams. Minor increases in tributary flows also can exacerbate creek bank erosion and cause destabilizing channel incision by altering the so-called 2-year or channel-forming flow, to which most creeks adjust by processes such as channel widening and deepening. Bank instability and bank failure often result in urban drainage systems where the channel-forming flow has been substantially altered.

The magnitude of these effects depends on the size, shape, and nature of the project watershed; the total impervious surface in the watershed; the nature of the storm drain system; the natural geologic stability of the creek system; and the extent that the drainage system incorporates peak flow reduction methodologies (e.g., porous pavement, onsite stormwater detention, or in-pipe detention). Typically, upland watersheds with short, steep drainage pathways and watersheds with brushland and forest covers are more susceptible to adverse effects from changed runoff patterns due to urbanization than are more gently sloping areas with grassland cover. In addition to watershed hydrologic changes from urbanization, the widespread conversion of forested and brushland hillside areas to cultivated crops can significantly alter runoff and erosion (drainage patterns), damaging watershed processes—especially in watersheds with unstable geology.

Conversion of softwood forest would be subject to regulation by the Department of Forestry and Fire Protection under its timberland conversion rules. This would include consideration of drainage. Conversion of hardwood forests (oak woodlands, for example) is not subject to the Department's regulations. Instead, County regulations would apply. Additionally, any agricultural operation would be subject to the Central Coast RWQCB's Conditional Waiver for Irrigated Agriculture, which requires actions to avoid release of sediment into waterways. That would strongly discourage altering runoff patterns.

As required by Monterey County Code Chapter 16.16.040, all development proposals for five parcels or more must ensure that the flood discharge exiting the development after construction is equal to or less than the flood discharge at the location prior to development. Title 19, the subdivision ordinance, includes a requirement for a discussion of how stormwater drainage caused by a proposed project's impervious surfaces will be controlled. The Carmel River setback requirements under Chapter 21.64.130

would avoid erosion along the Carmel River. The MCWRA typically reviews potential increased stormwater runoff and enforces a "no net increase in runoff" policy associated with its review of discretionary development proposals, as well as in its lead role in administering the NPDES Phase II stormwater regulations.

The NPDES program establishes regulations that will be followed during construction activities. It requires preparation of a SWPPP to minimize erosion. This will ensure that construction will not begin a cycle of erosion by damaging streambanks or other sensitive areas.

2007 General Plan Policies

In addition to current NPDES requirements discussed under Regulatory Framework, the Conservation and Open Space and Safety Elements of the 2007 General Plan contain several drainage and stormwater management policies that would help to mitigate the potential drainage and bank erosion channel stability secondary impacts associated with new development. In general, the policies would encourage better land use planning through the use of appropriate hydrologic and hydraulic analysis in the discretionary project approval process with respect to site design, building location, and drainage infrastructure design.

Conservation and Open Space Element

Conservation and Open Space Element Policy OS-3.3 requires the establishment of evaluation criteria for development and land use changes in areas with hydrologic/geologic constraints or hazards, including drainage, water quality, and stream stability problems due to increased stormwater runoff.

Conservation and Open Space Element Policy OS-3.4 (erosion and GIS) establishes that those areas where slopes pose severe constraints for development shall be mapped in the County's GIS. The information shall be updated at least every 5 years.

Conservation and Open Space Element Policy OS 3.5 (erosion/slopes) requires that the County shall prohibit development on slopes greater than 30%. It is the general policy of the County to require dedication of scenic easement on a slope of 30% or greater. Upon application, an exception to allow development on slopes of 30% or greater may be granted at a noticed public hearing by the approving authority for discretionary permits or by the Planning Commission for building and grading permits. Criteria include consideration of erosion control and drainage. This policy is described in detail in Impact WR-2.

Conservation and Open Space Element Policy OS-3.8 (erosion and water quality public outreach) requires that the County shall

cooperate with appropriate regional, state, and federal agencies to provide public education/outreach and technical assistance programs on erosion and sediment control, efficient water use, water conservation and re-use, and groundwater management. This cooperative effort shall be centered through the Monterey County Water Resources Agency.

Conservation and Open Space Element Policy OS-3.9 (erosion and water quality) establishes that the County will develop a Program that will address the potential cumulative hydrologic impacts of the conversion of hillside rangeland areas to cultivated croplands. The Program will be designed to address offsite soil erosion, increased runoff-related stream stability impacts, and/or potential violation of adopted water quality standards. The County should convene a committee comprised of County staff, technical experts, and stakeholders to develop the Program, including implementation recommendations.

Safety Element

Safety Element Policy S-1.2 (GIS, erosion, marine/coastal) calls for a Geologic Constraints and Hazards Database to be developed and maintained in the County GIS. The GIS shall be used to identify areas containing hazards and constraints (see Policy PS-2.6) that could potentially impact the type or level of development allowed in these areas (Policy OS-3.5). Maps maintained as part of the GIS include:

a. Coastal Erosion

b. Moderate and High Erosion Hazards

c. Highly Erodible Soils

Safety Element Policy S-3.1 requires that post-development, offsite peak flow drainage not be greater than pre-development conditions. Onsite improvements or other methods for stormwater detention shall be required to maintain post-development, offsite, peak flows at predevelopment levels.

Safety Element Policy S-3.3 provides for installation of mitigation drainage facilities concurrent with new development.

Safety Element Policy S-3.5 requires the MCWRA to develop and implement runoff performance standards for site planning and to design techniques that would reduce storm flows and capture runoff for groundwater recharge.

Safety Element Policy S-3.6 requires the County to prepare an inventory of areas where there is a high probability of accelerated erosion, sedimentation, and/or chemical pollution. This inventory

shall be maintained as part of the County's GIS mapping database. This information will be used in analyzing project impacts and requiring mitigation.

Safety Element Policy S-3.7 requires the MCWRA to prepare a flood criteria or drainage design manual establishing floodplain management policies, drainage standards and criteria, stormwater detention, and erosion control and stormwater quality protection measures.

Area Plan Policies

In addition to previously discussed Area Plan policies addressing erosion control (see Impact WR-2), supplemental policies related to drainage and runoff issues also would incorporate erosion control measures.

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-1.2 (Drainage Management Plan) states that in the Spence/Potter/Encinal Road Special Treatment Area, subdivision of land shall be approved only under certain conditions including that a Drainage Management Plan to mitigate runoff to adjoining farmlands must be prepared for the entire Special Treatment Area.

Greater Salinas Area Plan Policy GS-3.1 (erosion) states that all vegetation on land exceeding 25% slope, particularly chaparral and broad leaf evergreen, should remain undisturbed to minimize erosion and retain important visual amenities.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policies CSV-1.3 and CSV-5.3, include provisions to mitigate runoff impacts on agricultural operations. Central Salinas Valley Area Plan Policies CSV-1.1 and CSV-1.2 require comprehensive development plans for certain recreation and commercial land use projects to address drainage.

Central Salinas Valley Area Plan Policy CSV-5.1 (groundwater recharge, riparian habitat, flood hazards, Arroyo Seco River, and Salinas River) ensures that development shall be designed to maintain groundwater recharge capabilities on the property. To protect and maintain areas for groundwater recharge, preservation of riparian habitats, and flood flow capacity, the main channels of the Arroyo Seco and Salinas Rivers shall not be encroached on by development.

Central Salinas Valley Area Plan Policy CSV-5.2 requires recreation and visitor-serving commercial development to prove that excessive

runoff with erosion potential will not be produced (as determined by the WRA).

Carmel Valley Area Plan

Carmel Valley Master Plan Policy CV-2.9 (erosion and construction) states that no roads should cross slopes steeper than 30% unless factors of erosion and visible scarring can be mitigated.

Carmel Valley Master Plan Policy CV-3.8 (Carmel River, erosion, and riparian) ensures that development shall be sited to protect riparian vegetation, minimize erosion, and preserve the visual aspects of the Carmel River. In places where the riparian vegetation no longer exists, it should be planted to a width of 150 feet from the river bank, or the face of adjacent bluffs, whichever is less. Density may be transferred from this area to other areas within a lot.

Carmel Valley Master Plan Policy CV-3.9 (riparian vegetation) establishes that willow cover along the banks and bed of the Carmel River shall be maintained in a natural state for erosion control. Constructing levees, altering the course of the river, or dredging the river shall only be allowed by permit from the Monterey Peninsula Water Management District or Monterey County.

Policy CV-4.1 in the Carmel Valley Master Plan protects against rapid runoff or erosion impacts by requiring that vegetation be maintained on specified slope and soil combination areas. Carmel Valley Master Plan Policy CV-4.2 requires establishment of a subbasin or valley-wide drainage maintenance program that also would incorporate erosion control mitigation measures.

Cachagua Area Plan

Cachagua Area Plan Policy CACH-3.7 (riparian vegetation and fisheries) requires that new development shall be sited to protect riparian vegetation and threatened fish species, minimize erosion, and preserve the visual aspects of the Carmel and Arroyo Seco Rivers. Private property owners are encouraged to preserve the Carmel River in its natural state, to prevent erosion and protect fishery habitat. Fishery habitats located above the Los Padres and San Clemente Dams shall be maintained in a productive state accessible to fish populations, especially steelhead.

Cachagua Area Plan Policies CACH-3.5 and CACH-4.1 require commercial mining and timber production to include drainage mitigation measures.

South County Area Plan

South County Area Plan Policy SC-5.3 (new development and flood hazards) establishes that new development may not encroach on the main channels and associated floodways of the Nacimiento, San Antonio, and Salinas Rivers in order to conserve groundwater recharge, preserve riparian habitats, and protect flood flow capacity.

South County Area Plan Policy SC-5.4 includes provisions to mitigate runoff impacts on agricultural operations.

Community Area Policies

Fort Ord Master Plan

In addition to Fort Ord Master Plan Soils and Geology policies previously discussed for erosion control (see Impact WR-2), Fort Ord Master Plan Hydrology and Water Quality Policies A-1 and A-2 incorporate stormwater runoff minimization measures for new development. These measures include programs requiring the County to develop site drainage design and stormwater infiltration BMPs; to adopt and enforce a stormwater detention plan for all new development; to prepare, adopt, and enforce a master drainage plan for the area; and to develop a stream-gauging program for creeks in the eastern part of the former Fort Ord.

Soils and Geology Program A-6.2 (erosion and slope limitation) explains that the County shall designate areas with extreme slope limitations for open space or similar use if adequate erosion control measures and engineering and design techniques cannot be implemented.

Hydrology and Water Quality Policy C-4 (erosion and siltation) calls for the County to prevent siltation of waterways, to the extent feasible. Hydrology and Water Quality Program C-4.1 (erosion, siltation and agency coordination) requires that the County, in consultation with the Natural Resources Conservation Service, develop a program that will provide, to owners of property near waterways and other appropriate entities, information concerning vegetation preservation and other best management practices that would prevent siltation of waterways in or downstream of the former Fort Ord.

Biological Resources Program A-5.3 (stormwater drainage plans) states that the County shall require stormwater drainage plans for all developments adjacent to the habitat management areas to incorporate measures for minimizing the potential for erosion in the habitat management areas due to stormwater runoff.

Significance Determination

Current ordinance requirements and practices utilized in the review of flood control, drainage, grading permits, and stormwater runoff controls under the NPDES programs, as administered by the MCWRA—as well as policies contained in the proposed 2007 General Plan (including the new drainage design manual)—would mitigate new impacts associated with increased runoff and other surface drainage modifications, including potential impacts on channel stability, and streambank erosion due to changes in drainage patterns. As described above, these planning and regulatory measures will apply to development within the planning areas, individual lots, and activities on rural lands.

Mitigation Measures

Implementation of the 2007 General Plan policies and Area Plan goals and policies would reduce potential impacts on water quality associated with increased erosion from alterations to drainage patterns to a less-than-significant level. In addition, Mitigation Measure BIO-2.1: Stream Setback Ordinance will require the County to develop and adopt a county-wide Stream Setback Ordinance to establish minimum standards for the avoidance and setbacks for new development relative to streams. This will reduce the potential for erosion along streams that might otherwise occur as a result of new development. No additional mitigation is required.

Significance Conclusion

Preparing new flood control and drainage criteria as required by Policy S-3.7 (the new drainage design manual), including a section detailing erosion control and biotechnical bank stabilization to more specifically address these factors, would reduce these impacts to a less-than-significant level.

Buildout

Impact of Development with Policies

Buildout will result in a more extensive development pattern than currently exists or than is projected to exist under the 2030 planning horizon. Development of existing lots of record will add substantial low-density residential development by 2092.

Significance Determination

The policies of the 2007 General Plan will be fully implemented by 2092, and it can be assumed that federal and state regulatory requirements at that time would be at least as stringent as today. Federal and state regulations, including the NPDES program, have grown increasingly stringent since the enactment of the Clean Water Act and Porter Cologne Act. Assuming that this trend continues, with most development centered around population

centers, these policies and regulations will be effective in avoiding streambank erosion from increased runoff. Development on individual lots would presumably be subject to the same or more stringent regulations than today. Therefore, future runoff impacts would not be substantially greater than the impact associated with the 2030 planning horizon.

Mitigation Measures

Implementation of the 2007 General Plan policies would reduce stream erosion impacts associated with runoff from increased development to a less-than-significant level. No mitigation is required.

Significance Conclusion

This impact would be less than significant.

Substantially Alter Existing Drainage Patterns—Resulting in Increased Flood Risk

Impact WR-11: Land uses and development consistent with the 2007 General Plan would result in increases in stormwater runoff and peak discharge. Existing storm drain systems, including urban creeks and rivers, may be incapable of accommodating increased flows, potentially resulting in increased onsite or offsite flooding. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Land uses and development consistent with the 2007 General Plan would increase runoff and result in adverse modifications to local and regional hydrology. While the majority of future development would be concentrated in the cities, Community Areas, and Rural Centers, potential future development in presently less-developed rural areas of the county may necessitate the construction of new drainage facilities for stormwater conveyance and management. In areas where drainage infrastructure already exists, drainage systems may need to be enlarged or expanded to accommodate future growth. Stormwater management practices commonly used to mitigate increases in peak flows (e.g., detention, retention, and infiltration) also can be implemented throughout the county and can serve to mitigate drainage impacts.

Unless properly planned and engineered, local storm drainage modifications, stream channel alterations, and structural bank stabilization measures would create significant localized flooding impacts, in some cases by moving the existing flooding and channel instability problems cross channel or

downstream, or by changing the timing of peak flows and point of discharge of runoff.

The existing County floodplain management ordinance (Chapter 16.16 of the Monterey County code) and the MCWRA's drainage review practices currently address drainage and flooding issues as part of both discretionary and, occasionally, ministerial projects. New development is prohibited within floodplains unless it meets the requirements of the County floodplain ordinance and can show that it will not adversely affect the flow within the floodplain.

2007 General Plan Policies

The 2007 General Plan contains policies for drainage and flood control.

Safety Element

Safety Element Policy S-3.1 requires that post-development, offsite peak flow drainage not be greater than predevelopment conditions. Onsite improvements or other methods for stormwater detention will be required to maintain post-development, offsite, peak flows at predevelopment levels.

Safety Element Policy S-3.3 requires the installation of mitigation drainage facilities concurrent with new development.

Safety Element Policy S-3.4 (flood hazards) requires that a County Flood Management Program that helps reduce flood risks shall be established consistent with FEMA requirements at a minimum. The program will consider both structural and non-structural solutions to address flooding.

Safety Element Policy S-3.5 requires the MCWRA to develop and implement runoff performance standards for site planning and to design techniques that would reduce storm flows and capture runoff for groundwater recharge.

Safety Element Policy S-3.7 requires the MCWRA to prepare a flood criteria or drainage design manual establishing floodplain management policies, drainage standards and criteria, stormwater detention, and erosion control and stormwater quality protection measures.

Safety Element Policy S-3.8 (flood hazards [mapping]) establishes that, to assist planners in determining potential inundation hazards for existing and future development, the County shall coordinate the periodic review, completion, and filing (with appropriate state and County Offices of Emergency Services) of inundation maps for all dams and levees whose failure could cause loss of life or personal

injury within Monterey County. Where inundation maps indicate dam or levee failure could cause loss of life or property or personal injury, the corresponding responsible party shall investigate levee or dam stability and management, identifying emergency alert, evacuation, rehabilitation, and maintenance needs as appropriate.

Policies providing for water quality and stormwater pollution controls would also reduce the rate of surface water runoff and potential downstream drainage and flooding problems.

Area Plan Policies

In addition to previously discussed Area Plan policies addressing drainage management (see Impact WR-9), there are supplemental policies specific to drainage issues and flood risk.

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-1.2 (Drainage Management Plan) states that in the Spence/Potter/Encinal Road Special Treatment Area subdivision of land shall be approved only under certain conditions including that a Drainage Management Plan to mitigate runoff to adjoining farmlands must be prepared for the entire Special Treatment Area.

Greater Salinas Area Plan Policy GS-1.7 (Drainage Management Plan) ensures that in the Spence/Potter/Encinal Road Study Area (see Policies CSV-1.3 and GS-1.2) prior to new development, a drainage management plan to mitigate runoff to adjoining farmlands for the entire study area must be completed.

Greater Salinas Area Plan Policy GS-1.10 (Drainage Management Plan) establishes that in the Natividad/Rogge Road Special Treatment Area subdivision of land shall be approved only under three conditions, one of which is that a drainage management plan to mitigate runoff to adjoining farmlands is prepared for the entire special treatment area.

Greater Salinas Area Plan Policy GS-5.1 (Gabilan Creek, riparian corridor, flood hazard) calls for portions of Gabilan Creek to be evaluated for a linear park as defined by the County's Parkland Classification System at such time when the County can support another regional park. Until such time, Gabilan Creek shall be:

a. maintained in a natural riparian state;

b. kept in a free-flow state devoid of dams;

c. allowed its natural flood capacity through required setbacks conforming to the 100 year flood plain; and

d. kept free from urban encroachment by residential development through required dedication of land in the floodplain corridor.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policy CSV-5.1 (groundwater recharge, riparian habitat, flood hazards, Arroyo Seco River, Salinas River) ensures that development shall be designed to maintain groundwater recharge capabilities on the property. To protect and maintain areas for groundwater recharge, preservation of riparian habitats, and flood flow capacity, the main channels of the Arroyo Seco River and the Salinas River shall not be encroached on by development.

Central Salinas Valley Area Plan Policy CSV-5.2 (a. groundwater recharge, b. new development, c. floodways, d. new development, groundwater quality/quantity, e. septic, f. stormwater, erosion) states that recreation and visitor-serving commercial uses shall only be allowed if it can be proven that:

a. areas identified by the Water Resources Agency as prime-groundwater recharge areas can be preserved and protected from sources of pollution as determined by the Director of Environmental Health and the Water Resources Agency;

b. proposed development can be phased to ensure that existing groundwater supplies are not committed beyond their safe, long-term yields where such yields can be determined;

c. floodways associated with the main channels of either the Arroyo Seco or Salinas Rivers will not be encroached on by development because of the necessity to protect and maintain these areas for groundwater recharge, preservation of riparian habitats, and flood flow capacity as determined by the Water Resources Agency;

d. the proposed development meets both water quality and quantity standards expressed in Title 22 of the California Code of Regulations and Title 15.04 of the Monterey County Code as determined by the Director of Environmental Health;

e. the proposed development meets the minimum standards of the Regional Water Quality Control Basin Plan when septic systems are proposed and also will not adversely affect groundwater quality, as determined by the Director of Environmental Health; and

f. the proposed development will not generate levels of runoff that will either cause erosion or adversely affect surface water resources as determined by the Water Resources Agency.

South County Area Plan

South County Area Plan Policy SC-4.1 (flood hazards) identifies that channelization or realignment work on the Salinas River shall not be permitted without an assessment by the Monterey County Water Resources Agency that such work will not increase the flood hazard downstream.

South County Area Plan Policy SC-5.3 (new development and flood hazards) establishes that new development may not encroach on the main channels and associated floodways of the Nacimiento, San Antonio, and Salinas Rivers in order to conserve groundwater recharge, preserve riparian habitats, and protect flood flow capacity.

South County Area Plan Policy SC-5.4 (stormwater) states that stormwater facilities in new urban development shall be designed to mitigate impacts on agricultural lands located downstream.

Community Area Policies

Fort Ord Master Plan

Hydrology and Water Quality Program A- 1.3 (drainage master plan) states that the County shall prepare, adopt, and enforce a Master Drainage Plan to assess the existing natural and man-made drainage facilities, recommend area-wide improvements based on the approved Reuse Plan, and develop plans for control of stormwater runoff from future development. Such plans for control of stormwater runoff shall consider and minimize any potential for groundwater degradation and provide for the long-term monitoring and maintenance of all stormwater retention ponds.

Hydrology and Water Quality Program A-2.1 (flood hazards) establishes that the County shall implement a stream-gauging program for creeks in the eastern part of the former Fort Ord if proposals are submitted for development in that area. The gauging program should be partially or entirely funded by development fees. This program would provide information about potential flood hazards from these creeks.

Biological Resources Program A-8.1 (stormwater) establishes that the County shall prohibit the direct discharge of stormwater or other drainage from new impervious surfaces created by development of the Office Park parcel into the ephemeral drainage in the natural area expansion (NAE) parcel. No increase in the rate of flow of stormwater runoff beyond pre-development background levels will be allowed. Stormwater runoff from developed areas in excess of background quantities shall be managed on site through the use of basins, percolation wells, pits, infiltration galleries, or any other

technical or engineering methods that are appropriate to accomplish these requirements. Indirect sub-surface discharge is acceptable. These stormwater management requirements will be used for development on Polygon 31b (in Reuse Plan).

Significance Determination

Adoption and implementation of the policies and programs contained in the 2007 General Plan and County regulations discussed above would ensure that potential impacts of future development of on- and offsite drainage infrastructure would be reduced to a less-than-significant level. Although flooding would continue to occur in flood-prone areas, this is considered an existing condition for the purposes of CEQA review, and the policies and programs of the 2007 General Plan would ensure that flooding in these areas would not increase.

Mitigation Measures

Implementation of the 2007 General Plan policies and County regulations would reduce potential impacts on water quality associated with increased flood risk caused by increased runoff to a less-than-significant level. No additional mitigation is required.

Significance Conclusion

This impact would be less than significant.

Buildout

Impact of Development with Policies

Buildout would result in more extensive low-density residential development outside of cities and established communities than would occur within the 2030 planning horizon. This would increase the potential for future residences to affect flood risk.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent as they are today. Federal regulations, including the locally administered NFIP floodplain ordinance, have grown increasingly stringent since catastrophic flooding occurred in the Midwest in the 1990s, particularly with regard to assessing flood risk. Assuming that this trend continues, with most development centered around population centers, these policies and regulations would be effective in avoiding flood hazard from increased runoff. Development on individual lots would presumably be subject to the same or more stringent regulations than today. Therefore, future development impacts on flooding patterns would not be substantially greater than the impact associated with the 2030 planning horizon.

Mitigation Measures

Implementation of the 2007 General Plan policies would reduce flood impacts associated with runoff from increased development to a less-than-significant level. No mitigation is required.

Significance Conclusion

This impact would be less than significant.

Place Housing within an Area Subject to Flooding—Development in 100-Year Flood Hazard Areas

Impact WR-12: Land uses and development consistent with the 2007 General Plan would allow continued development in 100-year flood hazard areas. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

The 2007 General Plan generally would restrict new development and redevelopment within Community Areas, within Rural Centers, and on legal lots of record within unincorporated areas designated by FEMA as flood hazard areas, consistent with the County floodplain management ordinance and the Code of Federal Regulations for the NFIP. Pursuant to the ordinances, any new development would be required to either build outside the flood hazard areas or to elevate new structures above the anticipated flood depth. In addition, the 2007 General Plan would provide policies to mitigate the potential consequences of such development by means of appropriate siting and design criteria to protect both proposed structures and existing structures downstream.

The current Monterey County Code requires residential structures built within flood hazard areas to be elevated at least 1 foot above the elevation of the 100-year flood level to protect these structures from flood damage. Monterey County and FEMA federal floodplain management guidelines and regulations allow placement of fill within the floodway fringe to raise building pads above the 100-year flood level. New nonresidential buildings must either meet this criterion or provide an alternate method of flood proofing that is certified by a registered engineer and approved by the MCWRA.

Recent flooding on the Pajaro River has highlighted the risk of developing within its floodplain. The multijurisdictional Pajaro River Watershed Flood Prevention Authority has completed its study of potential flooding solutions (Pajaro River Watershed Flood Prevention Authority 2008). The USACE is now preparing an environmental analysis of the preferred project for

improving levees and flood protection along the river. As with many such projects, the proposal has engendered opposition over the type and location of improvements being proposed. Actual construction and improved flood protection are therefore expected to be several years into the future.

2007 General Plan Policies

The 2007 General Plan contains several policies and implementation programs to mitigate potential impacts arising from development in 100-year flood hazard zones. Some of the policies discussed for Impact WR-10 apply to general flood issues as well as issues associated with development in 100-year flood hazard areas. The policies described below are specific to development within 100-year flood hazard zones.

Conservation and Open Space Element

Conservation and Open Space Element Policy OS-3.5 requires a ministerial permit process for development in floodplain hazard areas.

Safety Element

Safety Element Policies S-2.1 through S-2.12 seek to reduce floodplain development and minimize the flood risk of such development through land use planning, the Community Plan process, consultation with the MCWRA, determination of mitigation measures prior to the approval of development, consideration of alternative project designs, compliance with NFIP guidelines, and discretionary permitting.

Safety Element Policy S-3.4 requires the establishment of a County flood management program to reduce flood risks through structural and nonstructural solutions.

Safety Element Policy S-3.7 requires the MCWRA to prepare a flood criteria or drainage design manual that establishes floodplain management policies, drainage standards and criteria, stormwater detention, and erosion control and stormwater quality protection measures in order to prevent significant impacts from flooding and ensure that development does not increase flooding risk over present conditions.

Public Services Element

Public Services Element Policy PS-2.6 includes GIS mapping (and flood map updates) of areas within the 100-year floodplain via the hydrologic resources constraints and hazards database. This will help avoid developing in these areas.

Area Plan Policies

Greater Salinas Area Plan

Greater Salinas Area Plan Policy GS-5.1 specifically mentions 100-year flood hazard areas in requiring conformity to 100-year floodplain setback compliance for Gabilan Creek.

Community Area Policies

Fort Ord Master Plan

Fort Ord Master Plan Fire, Flood, and Emergency Management Policy B-1 requires the County to identify and restrict construction in 100-year-flood-prone areas in the former Fort Ord, especially in the Salinas River Bluffs area.

Significance Determination

Development consistent with the 2007 General Plan within designated 100-year flood hazard zones in unincorporated areas is discouraged by existing County ordinance and proposed 2007 General Plan policies. Any such development would be subject to development standards aimed at minimizing on- and offsite flood damage. Implementation of the above policies and their corresponding implementation programs, along with the County's existing Floodplain Management Ordinance, would reduce potential impacts associated with development within flood hazard areas to a less-than-significant level. Flooding along the Pajaro River is an existing risk. The proposed 2007 General Plan policies would minimize new development within the river's floodplain.

Mitigation Measures

Implementation of the 2007 General Plan policies and County regulations would reduce potential impacts associated with development within Special Flood Hazard Areas (SFHAs) to a less-than-significant level. No additional mitigation is required.

Significance Conclusion

This impact would be less than significant.

Buildout

Impact of Development with Policies

Buildout would result in more extensive low-density residential development outside of cities and established communities than would occur within the 2030 planning horizon. This would potentially expose more residences to flood risk.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent as they are today. In particular, information gathered in the County's GIS under Policy PS-2.6 would identify those properties subject to flood risk, helping to avoid flood hazards from new development. Federal regulations, including the locally administered NFIP floodplain ordinance, have grown increasingly stringent since catastrophic flooding occurred in the Midwest in the 1990s, particularly with regard to assessing flood risk. Assuming that this trend continues, with most development centered around population centers, these policies and regulations would be effective in avoiding flood hazard related to new development. Development on individual lots would presumably be subject to the same or more stringent regulations than today. Therefore, future development impacts on flooding patterns would not be substantially greater than the impact associated with the 2030 planning horizon.

Global climate change is expected to result in variable weather patterns in the future. This may result in more rain or less than the current average in any given year. If rain levels exceed the assumptions made in preparing the floodplain delineations, then existing floodplain delineations would not accurately identify areas of flood risk and existing flood protection structures may not be sufficient to handle peak flood flows. Flood damage would result.

Mitigation Measures

Implementation of the 2007 General Plan policies would reduce flood impacts associated with runoff from increased development to a less-than-significant level. Specific information for Monterey County regarding future weather patterns and their effect on 100-year floodplain delineations does not exist. Therefore, no mitigation is feasible.

Significance Conclusion

Based on the uncertainty over future weather patterns by 2092, this impact is conservatively considered to be significant and unavoidable.

Placement of Structures in 100-Year Flood Hazard Areas—Leading to Downstream Flood Damage

Impact WR-13: The placement of land uses and structures within Special Flood Hazard Areas would impede or redirect flood flows, resulting in secondary downstream flood damage, including bank failure. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

The 2007 General Plan would continue to allow new development and redevelopment within unincorporated areas designated by FEMA as Special Flood Hazard Areas (SFHAs). Policies and programs included in the 2007 General Plan, however, would seek to mitigate the potential consequences of such development regarding exposure of proposed structures to flood hazards, as well as increased flood risk to existing structures located upstream and downstream. As discussed under Impact WR-10, the County has a flood management ordinance that meets the requirements of the NFIP.

The development of currently vacant land areas within floodplains, especially in rural areas without drainage improvements, may involve modification of minor surface waterways and tributary stream courses. Where development occurs within the floodplain of a larger stream course, sometimes channel modification is required, such as new storm drainage outfalls, local stream realignment, or structural bank stabilization. The practice of lining channel banks with rock riprap and other hard structures can cause cross-bank and downstream channel instability problems. Encroachment of the toe or face of the structures into the stream channel can redirect flow, constrict channels (causing backwater flooding effects), or increase local turbulence and flow velocities (causing bank erosion).

Such local storm drainage modifications, stream channel alterations, and structural bank stabilization measures can create significant flooding impacts. In some cases, these include redirecting or moving existing flooding and channel instability problems cross channel or downstream, or changing the timing of peak flows and the point of discharge of runoff.

2007 General Plan Policies

The 2007 General Plan contains several policies that would reduce the potential for the placement of inappropriate land uses and development in flood hazard areas. These policies are listed above for Impacts WR-10 and WR-11. The flood criteria or drainage design manual, as required by Policy S-3.7, includes floodplain management policies.

In addition to these policies, the current standards of the County Zoning Code prohibit the placement of permanent structures in the floodways, with some exception for properly designed and placed bank stabilization projects. Structures placed in the floodway fringe are allowed. Generally, a use permit, CEQA review, and special review by the MCWRA would be required for placement of any structure within the floodplain. The existing Provisions for Flood Hazard Reduction (Monterey County Code 16.16.050) also consider the secondary upstream and downstream flooding hydraulic impacts of a development or channel modification project by requiring that proposed new development prove that it "will not cause flow-related hazards or otherwise aggravate flow-related erosion hazards."

Area Plan Policies

Previously discussed Area Plan supplemental policies related to flood protection (discussed for Impacts WR-10 and WR-11) would help to mitigate this impact.

Toro Area Plan

Toro Area Plan Policy T-4.1 prohibits practices that may increase the siltation and flooding of Toro Creek. This will maintain its capacity to carry high flows and reduce the frequency of flooding.

Significance Determination

Adoption and implementation of the policies and programs contained in the 2007 General Plan, combined with existing County and NFIP regulations, would ensure that potential impacts of future development on secondary flood hazards are avoided and the impact is less than significant.

Mitigation Measures

No mitigation is required.

Significance Conclusion

This would be a less-than-significant impact.

Buildout

Impact of Development with Policies

Buildout would result in more extensive low-density residential development outside cities and established communities than would occur within the 2030 planning horizon. This would increase the potential for future residences to affect flood risk.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent as they are today. Federal regulations, including the locally administered NFIP floodplain ordinance, have grown increasingly stringent since catastrophic flooding occurred in the Midwest in the 1990s, particularly with regard to assessing flood risk. Assuming that this trend continues, with most development centered around population centers, these policies and regulations will be effective in avoiding flood hazard related to new development. Development on individual lots would presumably be subject to the same, or more stringent, regulations as today. Therefore, future development impacts on flooding patterns would not be substantially greater than the impact associated with the 2030 planning horizon.

Global climate change is expected to result in variable weather patterns in the future. This may result in more rain or less than the current average in any given year. If rain levels exceed the assumptions made in preparing the floodplain delineations, then existing floodplain delineations would not accurately identify areas of flood risk and existing flood protection structures may not be sufficient to handle peak flood flows. Flood damage would result.

Mitigation Measures

Implementation of the 2007 General Plan policies would reduce flood impacts associated with runoff from increased development to a less-than-significant level. Specific information for Monterey County regarding future weather patterns and 100-year floodplain limits does not exist. Therefore, no mitigation is feasible.

Significance Conclusion

Based on the uncertainty over future weather patterns and their effect on flood zones, this impact is conservatively considered to be significant and unavoidable.

Expose Persons or Structures to Risk from Failure of Levees or Dams

Impact WR-14: Potential failure of levees or dams would expose people and structures to inundation and result in the loss of property, increased risk, injury, or death. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

The County has several large regulated dams within its boundaries whose potential failure would cause severe inundation, including Nacimiento and San Antonio Dams in the Salinas River Valley, and Los Padres and San Clemente Dams in the Carmel Valley. Although the county has not experienced dam failure in the last quarter century, the sudden failure of any one of these facilities—in response to a large magnitude earthquake, for instance—would potentially cause significant flooding downstream of the dams.

Specific requirements with respect to most non-federal dam designs and operations are established by the DSOD and are administered by the County. California Water Code Section 6000, et seq. and 23 CCR 301, et seq. establish the authority and responsibility of the DSOD, including periodic safety inspections of dams; completion of studies that predict the flood zones created by sudden dam failure; and development of emergency response plans in the advent of pending dam failure, including a program for emergency warning and evacuation prepared by the Monterey County Office of Emergency Services (MCOES). The contingency plans are updated every two years and submitted to the Governor's Office of Emergency Services for review and comment. Incorporated cities are responsible for developing contingency plans for state-designated dams affecting incorporated areas. The County is responsible for developing emergency plans for state-designated dams affecting unincorporated areas. As a result of these requirements, the water level in San Clemente Dam has been drawn down by order of DSOD to prevent its potential failure. At this writing, the Coastal Conservancy is leading efforts to fund the eventual removal of the dam.

Monterey County does not have an extensive system of levees providing urban flood protection for areas susceptible to catastrophic levee failure, although there are levees along portions of the Salinas, Arroyo Seco, Carmel, and Pajaro Rivers that are potentially subject to failure or overtopping. Levees and floodwalls that are constructed as part of USACE or U.S. Department of Agriculture flood control projects, or by local city or flood control district programs administered jointly by the MCWMA, also are required to undergo periodic inspections for safety and performance as part of routine maintenance plans. Such plans are completed as elements of project design and operational planning. Levee and floodwall assessment

also typically is completed as part of a FEMA flood insurance study, including floodplain-mapping updates.

The Pajaro River Watershed Flood Prevention Authority (PRWFPA) was created by the California Legislature in response to flooding on the lower river. The PFWFPA is developing a plan for improving flood protection along the Pajaro River involving the use of Soap Lake to attenuate projected flood flows on the lower river. This would prevent future levee failures. Preliminary planning has been completed. (Pajaro River Watershed Flood Prevention Authority 2008)

2007 General Plan Policies

The failure and inundation potential of all dams and levees within unincorporated portions of the county is not presently known. The 2007 General Plan allows growth and development in three areas that are potentially subject to either dam or levee failure: the Carmel Valley planning area and the Castroville and Pajaro Community Areas.

Safety Element

Safety Element Policy S-3.8 (flood hazards [mapping]) establishes that, to assist planners in determining potential inundation hazards for existing and future development, the County shall coordinate the periodic review, completion, and filing (with appropriate State and County Offices of Emergency Services) of inundation maps for all dams and levees whose failure could cause loss of life or personal injury within Monterey County. Where inundation maps indicate dam or levee failure could cause loss of life or property or personal injury, the corresponding responsible party shall investigate levee or dam stability and management, identifying emergency alert, evacuation, rehabilitation, and maintenance needs as appropriate.

Area Plan Policies

Cachagua Area Plan

Cachagua Area Plan Policy CACH-4.2 specifically addresses dam failure by prohibiting construction unless the risk of loss of life or property damage is low.

Significance Determination

The extent to which the County allows future development that puts people at risk to loss of life or property from dam or levee failure represents a potentially significant impact that is addressed by 2007 General Plan goals and policies, including Policy S-3.8. In addition to state and federal regulations requiring periodic inspection of flood protection facilities and dams, actions are underway to eliminate the dam failure hazard from the San

Clemente Dam and to reduce the potential for levee failure on the lower Pajaro River.

Mitigation Measures

Implementation of the 2007 General Plan policies in conjunction with other activities currently underway would reduce potential impacts associated with the risk of dam and levee failure to a less-than-significant level. No additional mitigation is required.

Significance Conclusion

Therefore, this impact would be less than significant.

Buildout

Impact of Development with Policies

Buildout would see the development of a substantial number of existing lots of record throughout the county. This would potentially increase the risk from failure of levees or dams by increasing the geographic extent of development.

Significance Determination

The policies of the 2007 General Plan would be fully implemented by 2092, and it may be assumed that federal and state regulatory requirements would be at least as stringent as they are today. Development on individual lots would presumably be subject to the same, or more stringent, regulations as today.

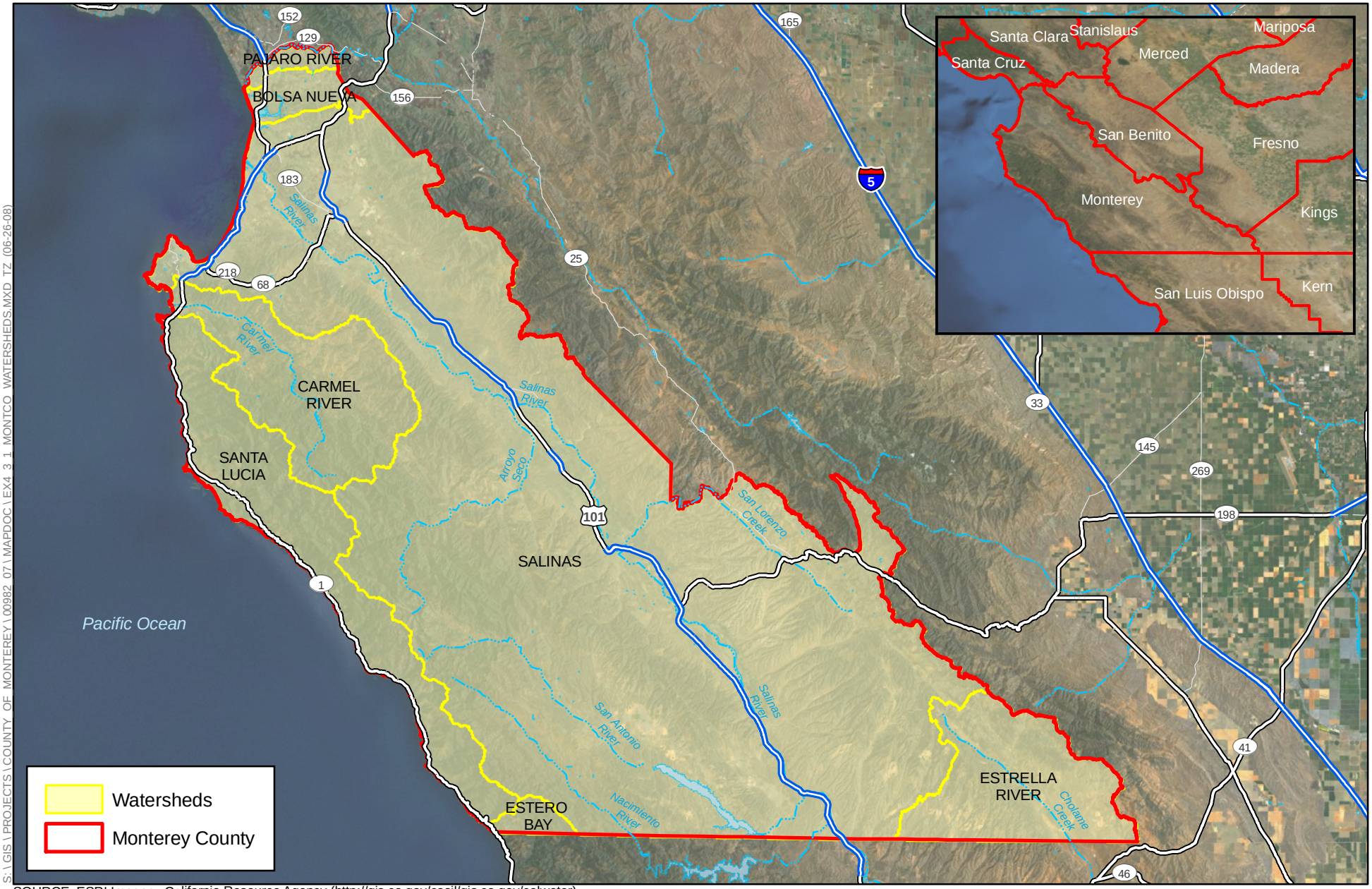
Global climate change will result in variable weather patterns in the future. Higher rain totals than included in the engineering assumptions for the Pajaro River flood risk reduction project would reduce the effectiveness of anticipated flood protection improvements. Similarly, existing dams may not have sufficient capacity to handle peak flood flows if rain exceeds design assumptions. Presumably, these facilities will be expanded or rebuilt as necessary to maintain dam safety, in accordance with current state law.

Mitigation Measures

Specific information for Monterey County regarding future weather patterns and 100-year floodplain limits does not exist. Therefore, no mitigation is feasible.

Significance Conclusion

As a result of uncertainty over future severe weather patterns, this impact is conservatively considered to be significant.



SOURCE: ESRI Imagery, California Resource Agency (http://gis.ca.gov/casil/gis.ca.gov/calwater)

S:\GIS\PROJECTS\COUNTY_OF_MONTEREY\00982_07\MAPDOC\EX4_3_1_MONTCO_WATERSHEDS.MXD TZ (06-26-08)

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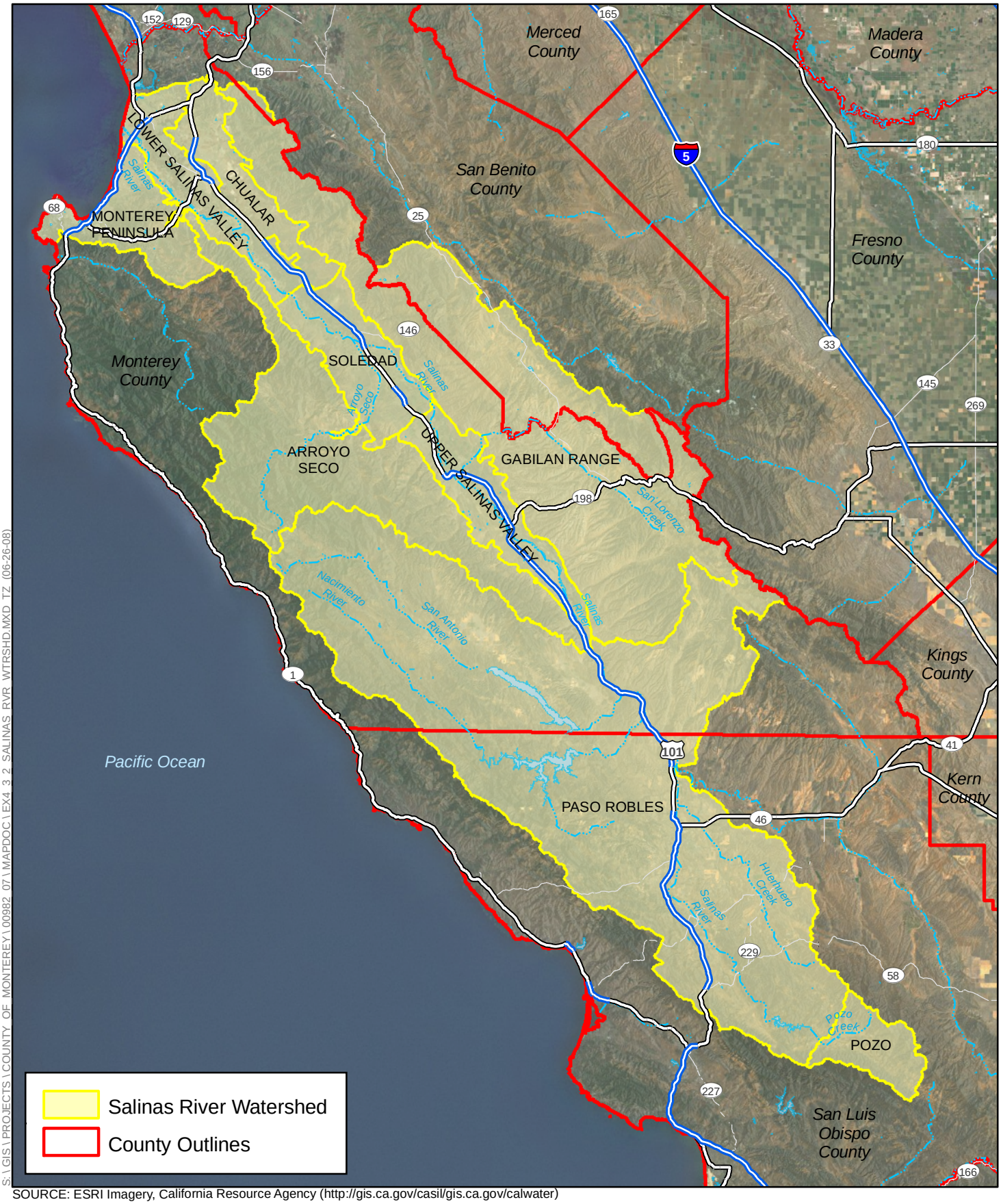
Exhibit 4.3.1
Monterey County Watersheds



SOURCE: ESRI Imagery, California Resource Agency (http://gis.ca.gov/casil/gis.ca.gov/calwater)

S:\GIS\PROJECTS\COUNTY OF MONTEREY\00982 07\MAPDOC\EX4 3 2 SALINAS RVR WTRSHD.MXD TZ (06-26-08)

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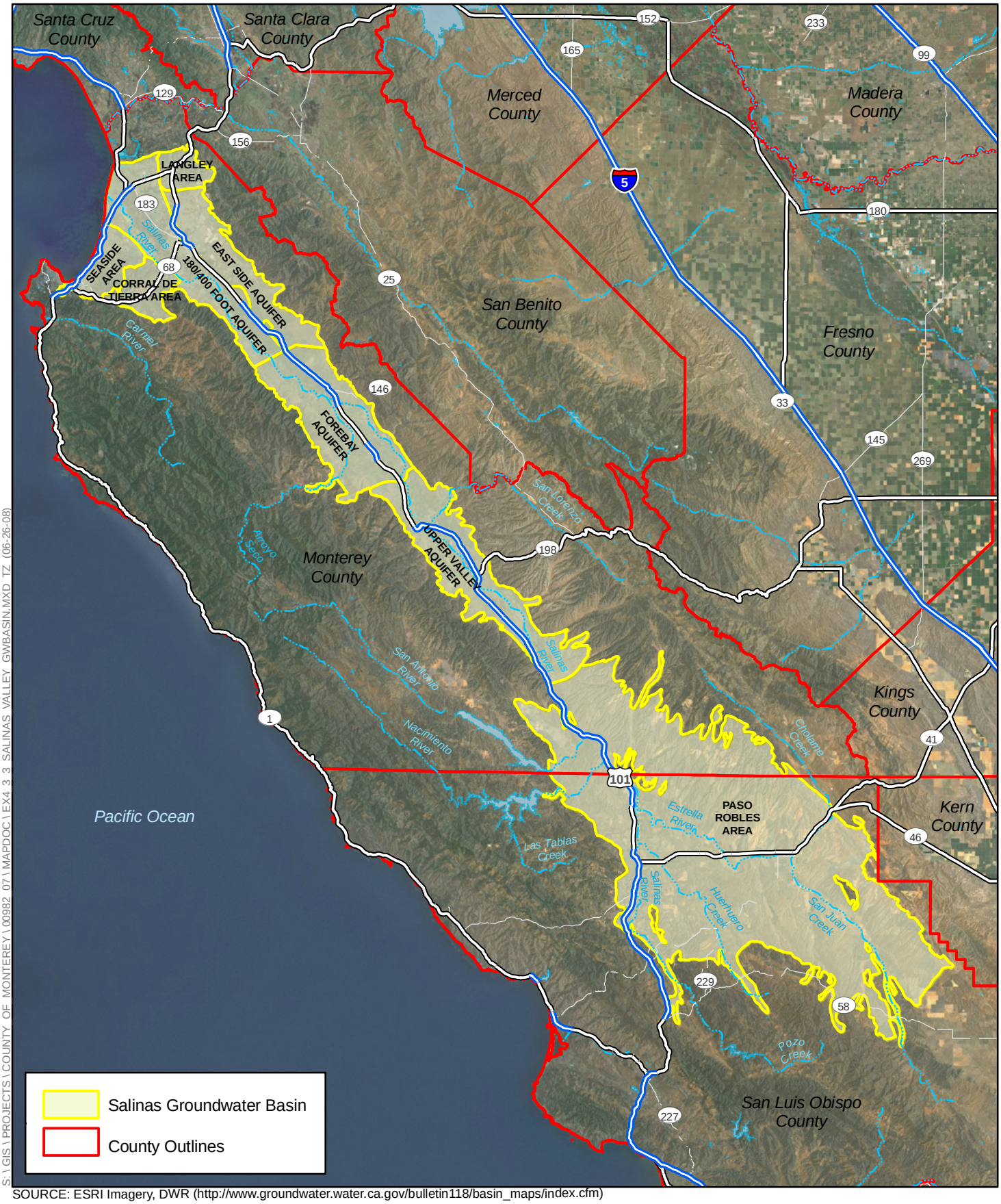
Exhibit 4.3.2
Salinas River Watershed



SOURCE: ESRI Imagery, DWR (http://www.groundwater.water.ca.gov/bulletin118/basin_maps/index.cfm)

S:\GIS\PROJECTS\COUNTY OF MONTEREY\00982 07\MAPDOC\EX4 3 3 SALINAS VALLEY GWBASIN.MXD TZ (06-26-08)

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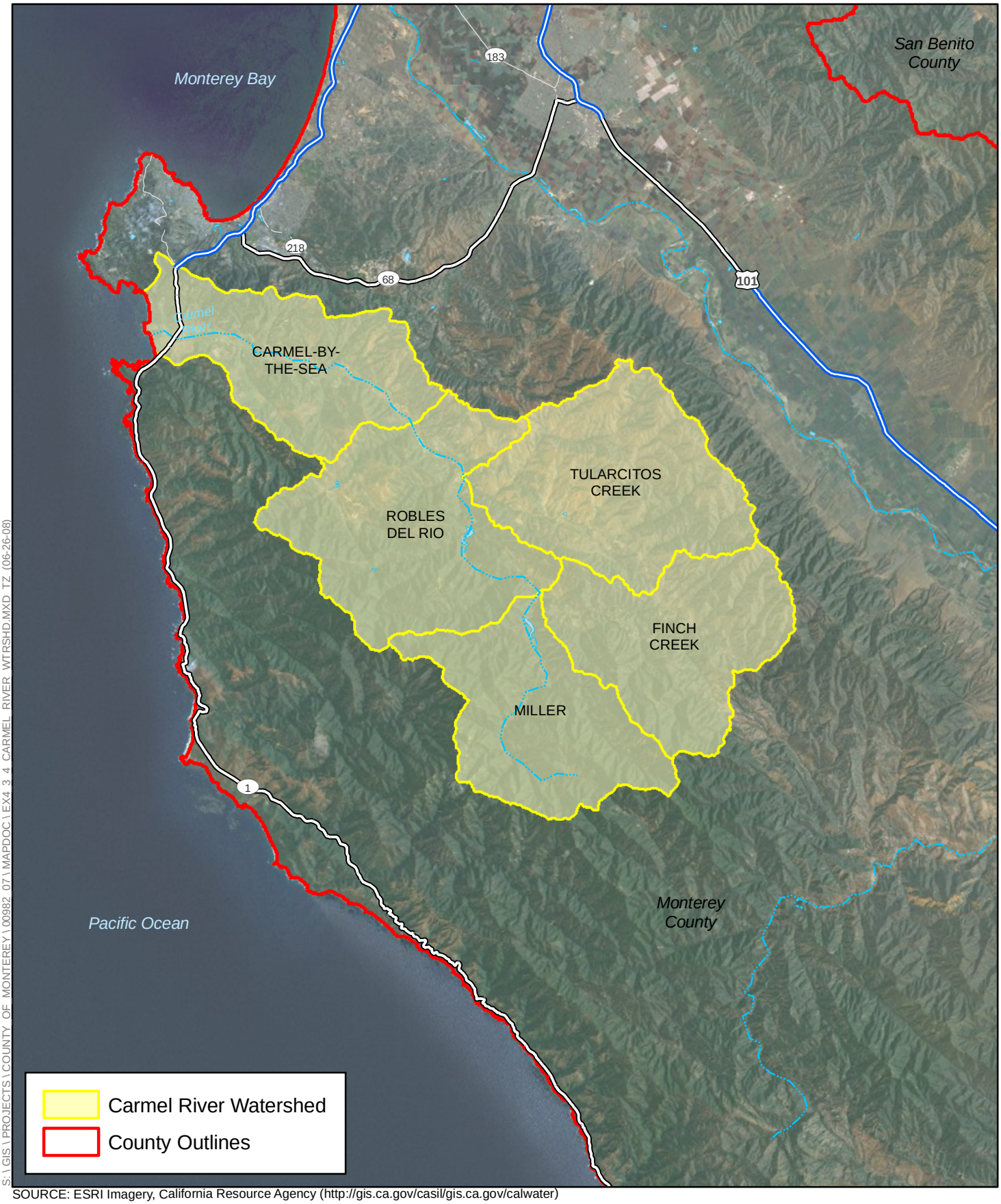
0 5 10 20 Miles

Exhibit 4.3.3
Salinas Valley Groundwater Basin



S:\GIS\PROJECTS\COUNTY OF MONTEREY\00982 07\MAPDOC\EX4 3 4 CARMEL RIVER WTRSHD.MXD TZ (06-26-08)

SOURCE: ESRI Imagery, California Resource Agency (http://gis.ca.gov/casil/gis.ca.gov/calwater)

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Figure 4.3.4
Carmel River Watershed

S:\GIS\PROJECTS\COUNTY OF MONTEREY\00982 07\MAPDOC\EX4 3 5 CARMEL VALLEY GWBASIN.MXD TZ (06-26-08)

SOURCE: ESRI Imagery, DWR (http://www.groundwater.water.ca.gov/bulletin118/basin_maps/index.cfm)

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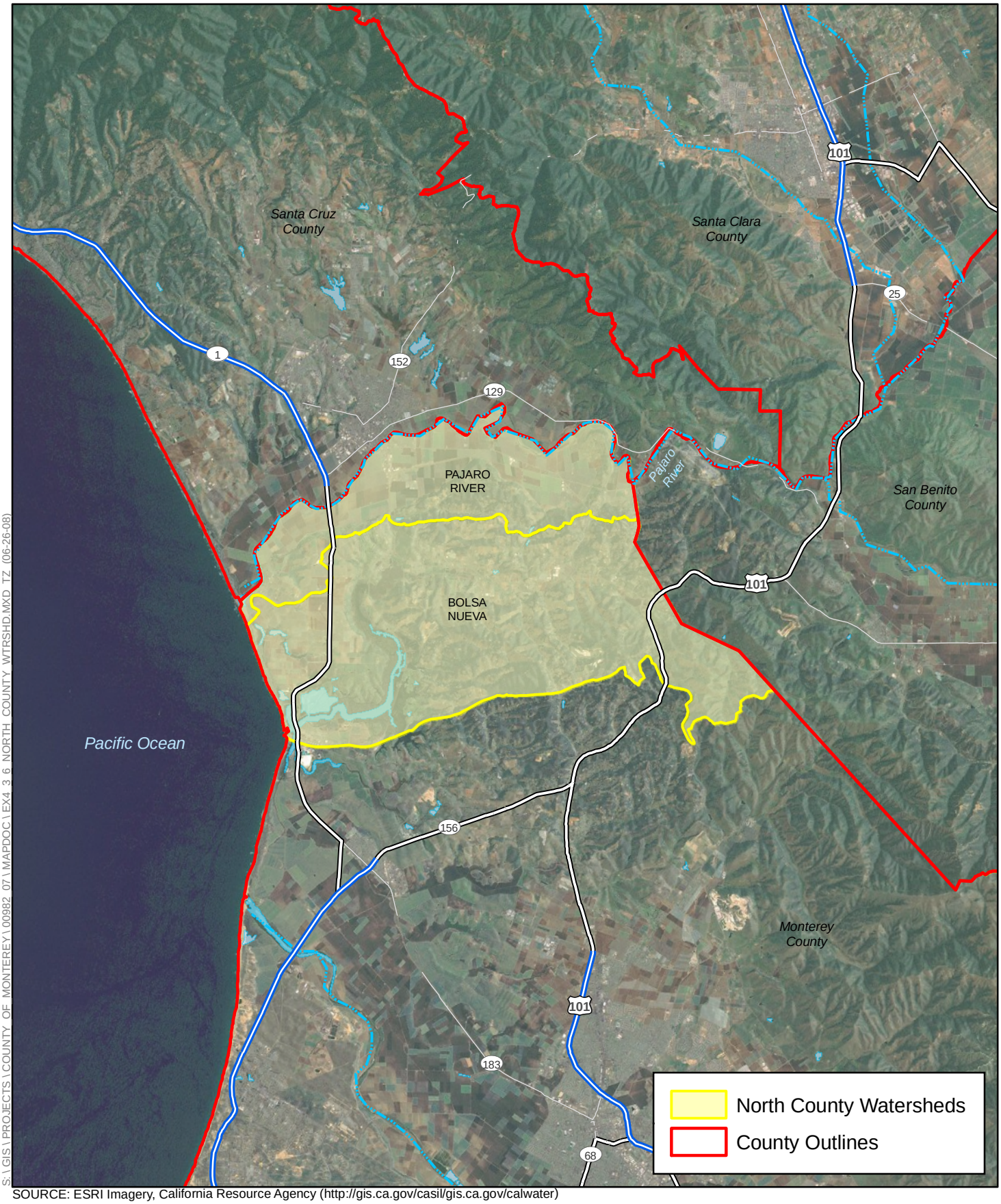
0 1 2 4 Miles

Exhibit 4.3.5
Carmel River Groundwater Basin



S:\ GIS \ PROJECTS \ COUNTY OF MONTEREY \ 00982 07 \ MAPDOC \ EX4 3 6 NORTH COUNTY WTRSHD.MXD TZ (06-26-08)

SOURCE: ESRI Imagery, California Resource Agency (http://gis.ca.gov/casil/gis.ca.gov/calwater)

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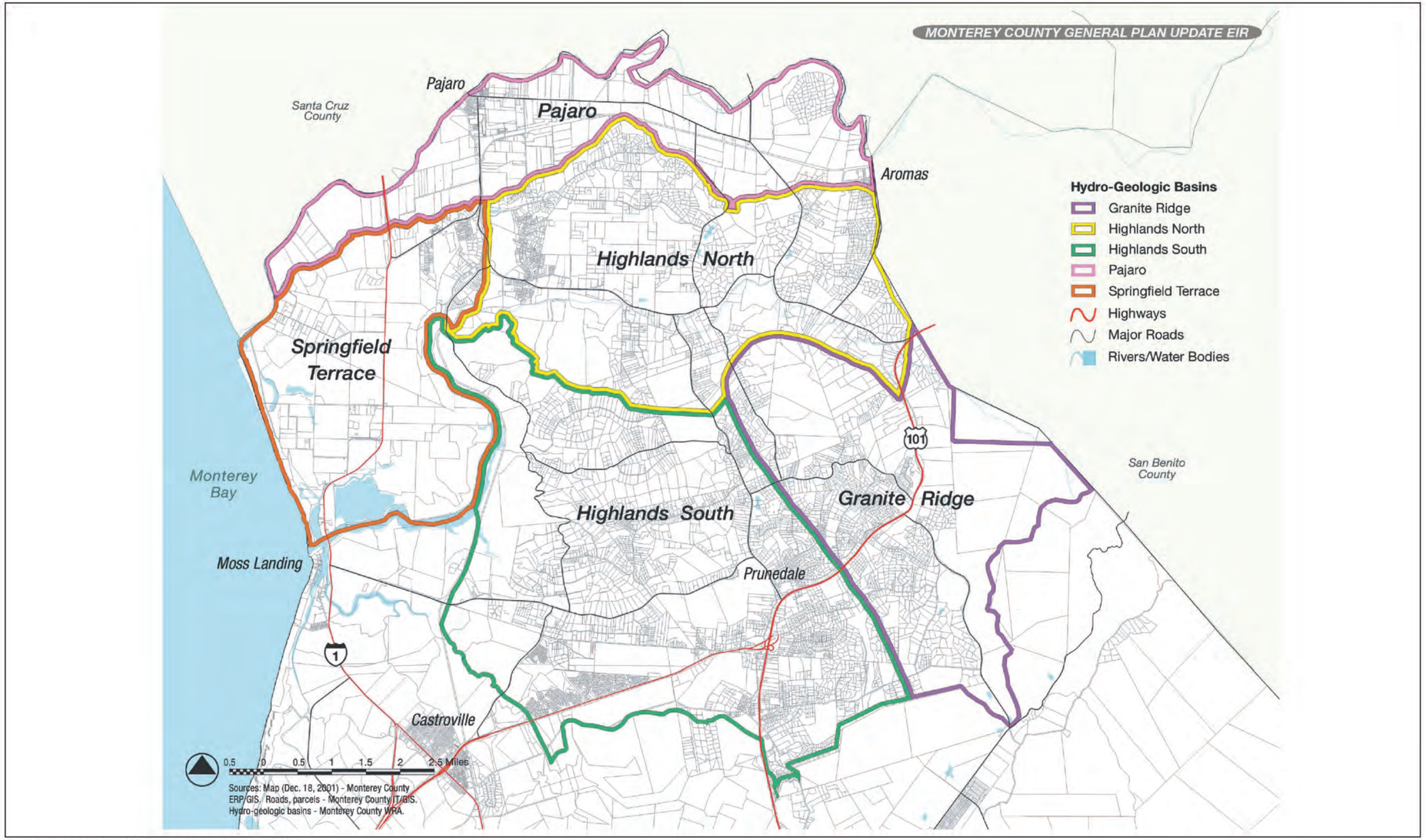
Exhibit 4.3.6
North County Watersheds



Source: Monterey County 2004 General Plan Update Draft EIR.

NORTH

Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

00982.07 (06-08)

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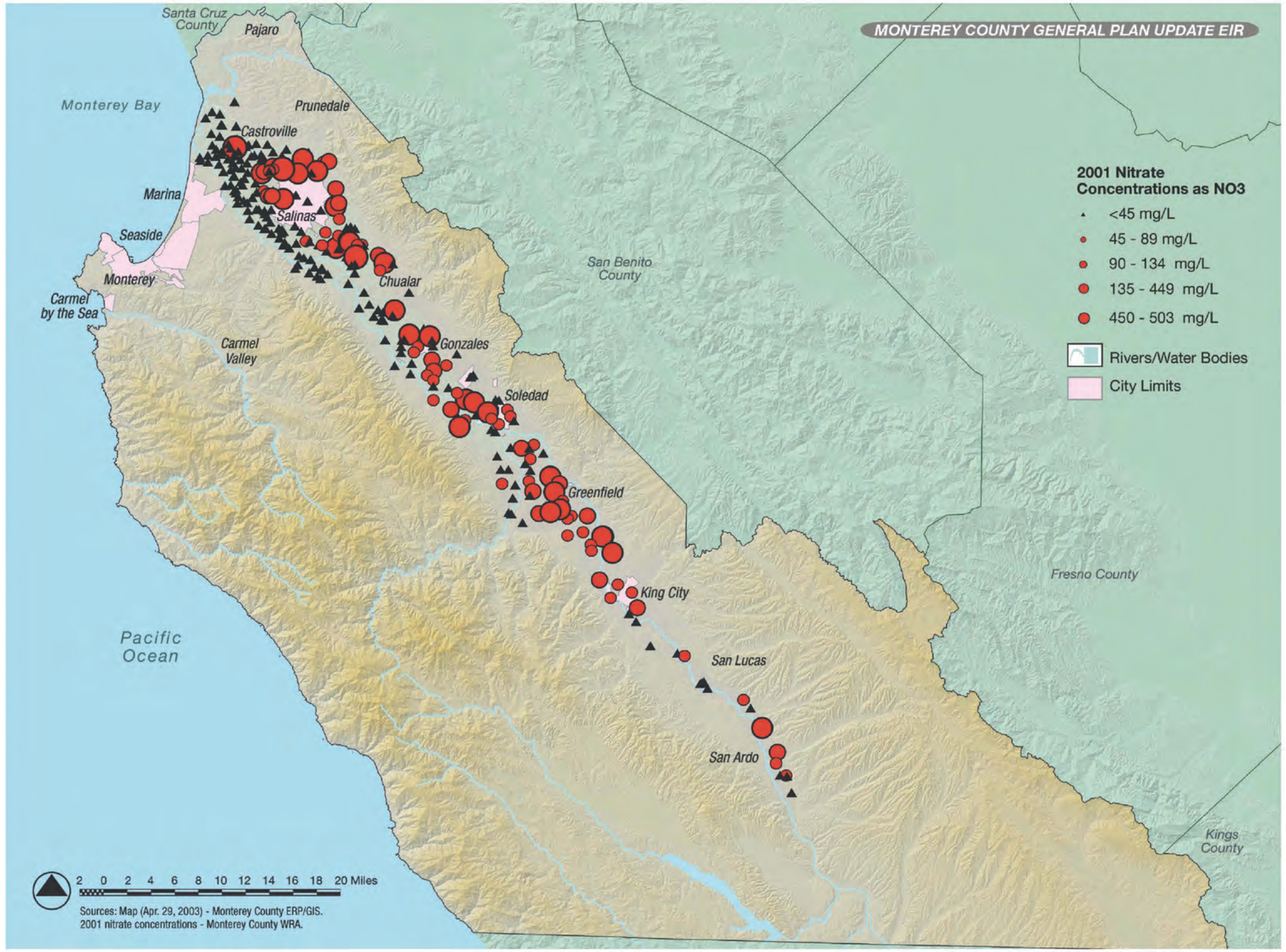
Exhibit 4.3.7
North County Groundwater Subareas



Source: Monterey County 2004 General Plan Update Draft EIR.

NORTH

Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

00982.07 (06-08)

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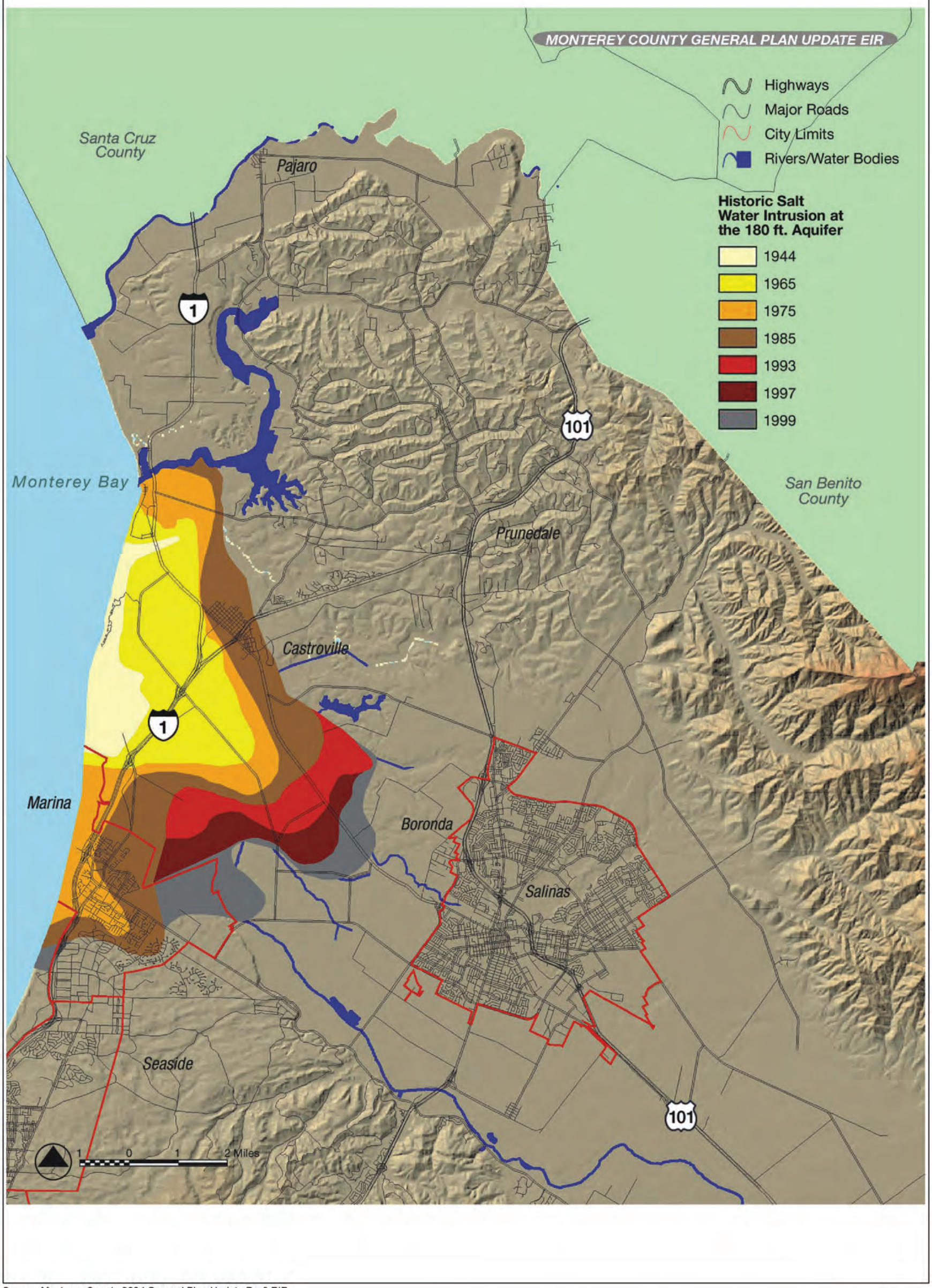
Exhibit 4.3.8
1998 Nitrate Concentrations for Wells in the Salinas Valley Groundwater Basin



Source: Monterey County 2004 General Plan Update Draft EIR.

Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

00982.07 (06-08)

ICF Jones & Stokes
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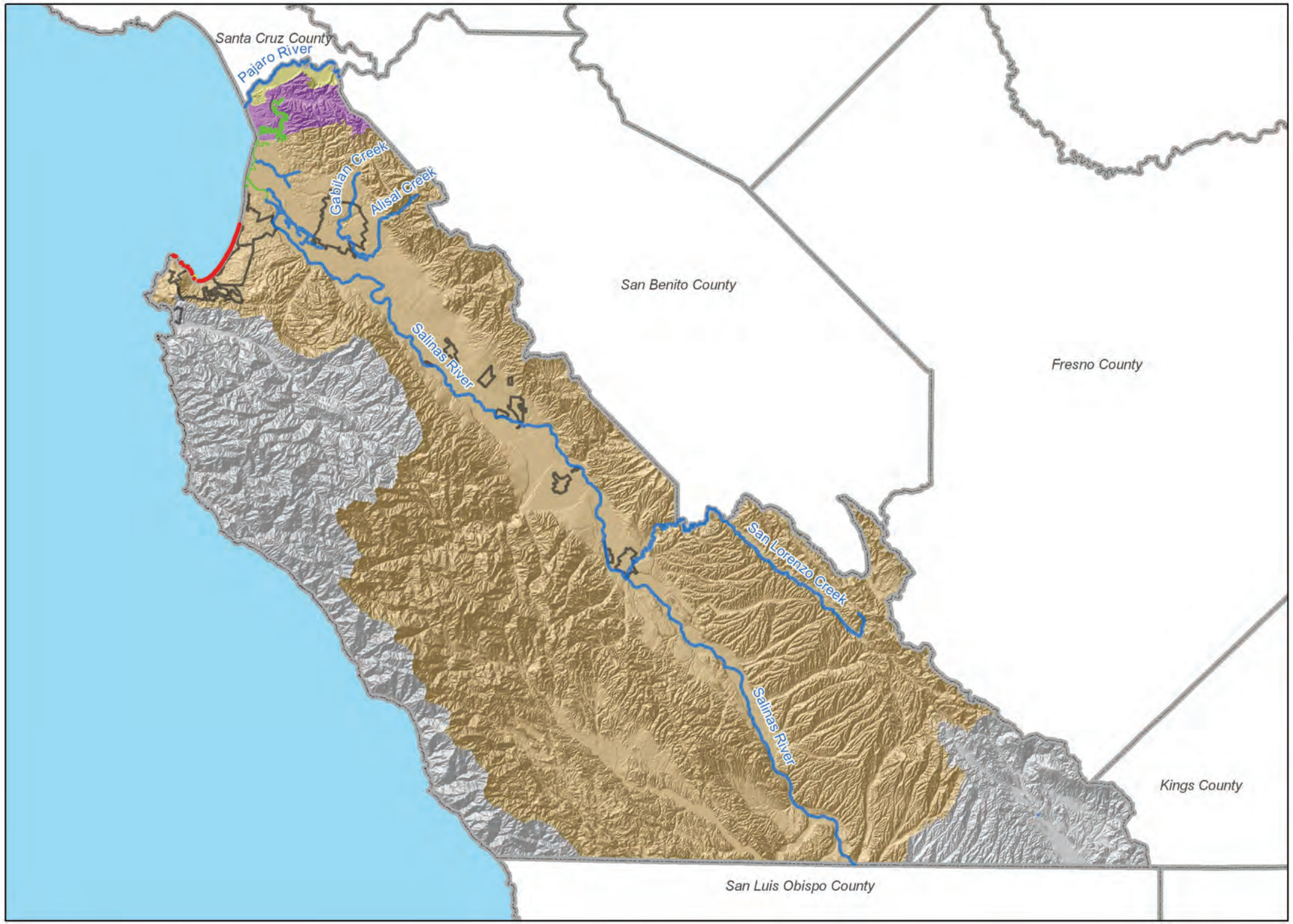
Exhibit 4.3.9
Sea Water Intrusion at 180-Foot Aquifer, Salinas Valley Groundwater Basin



Legend

- County Lines
- Incorporated Cities

Watersheds

- Bolsa Nueva
- Pajaro River
- Salinas

TMDL Impared Waterbodies

- Rivers
- Coastal Shorelines
- Estuaries
- Bays and Harbors

Source: Monterey County and State Water Resource Control Board.

NORTH

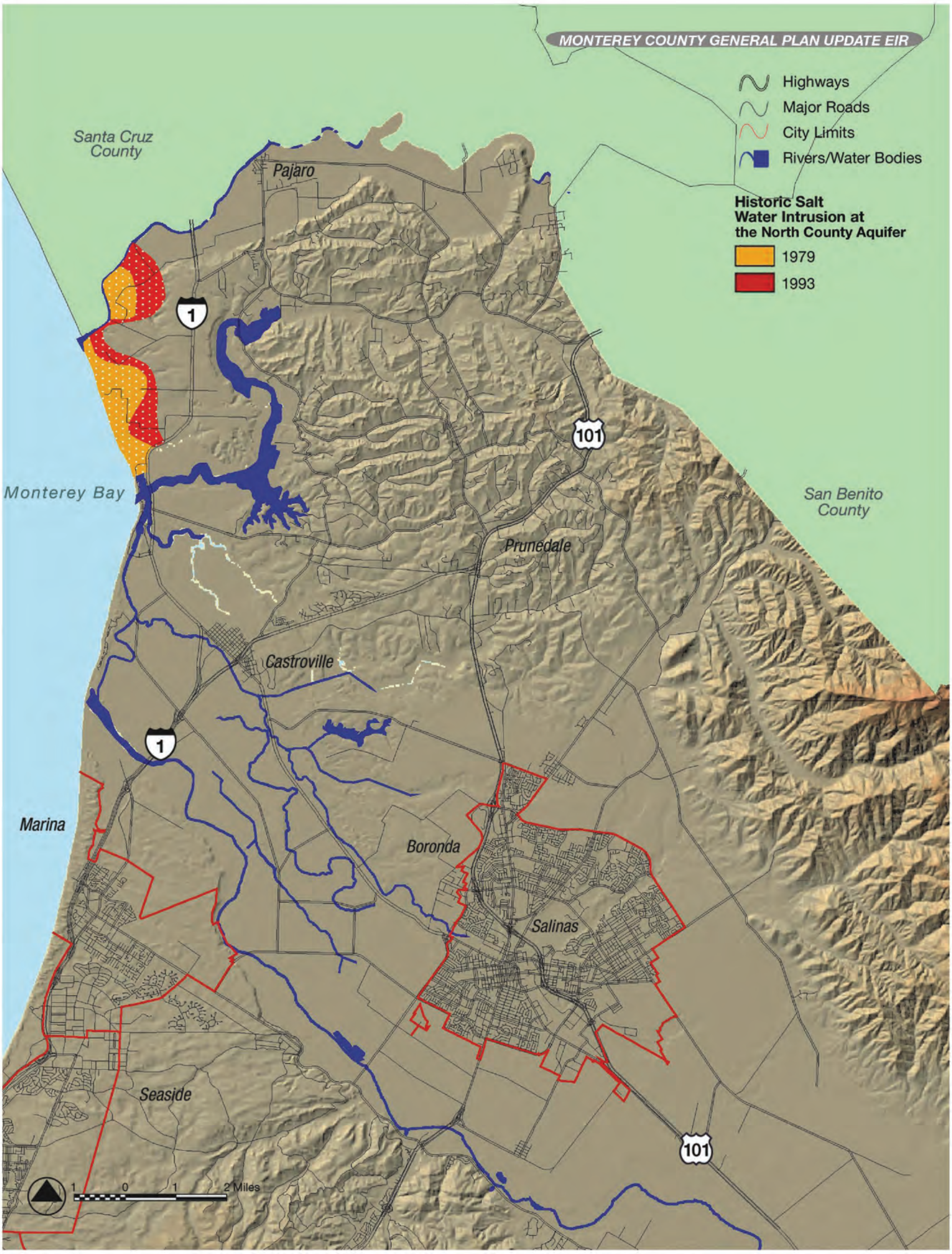
10 5 0 10 Miles

Michael Brandman Associates

0098.2.07 (06-08)

ICF Jones & Stokes
an ICF International Company

Exhibit 4.3.10
Water Intrusion at 400-Foot Aquifer, Salinas Valley Groundwater Basin



Source: Monterey County 2004 General Plan Update Draft EIR.

Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

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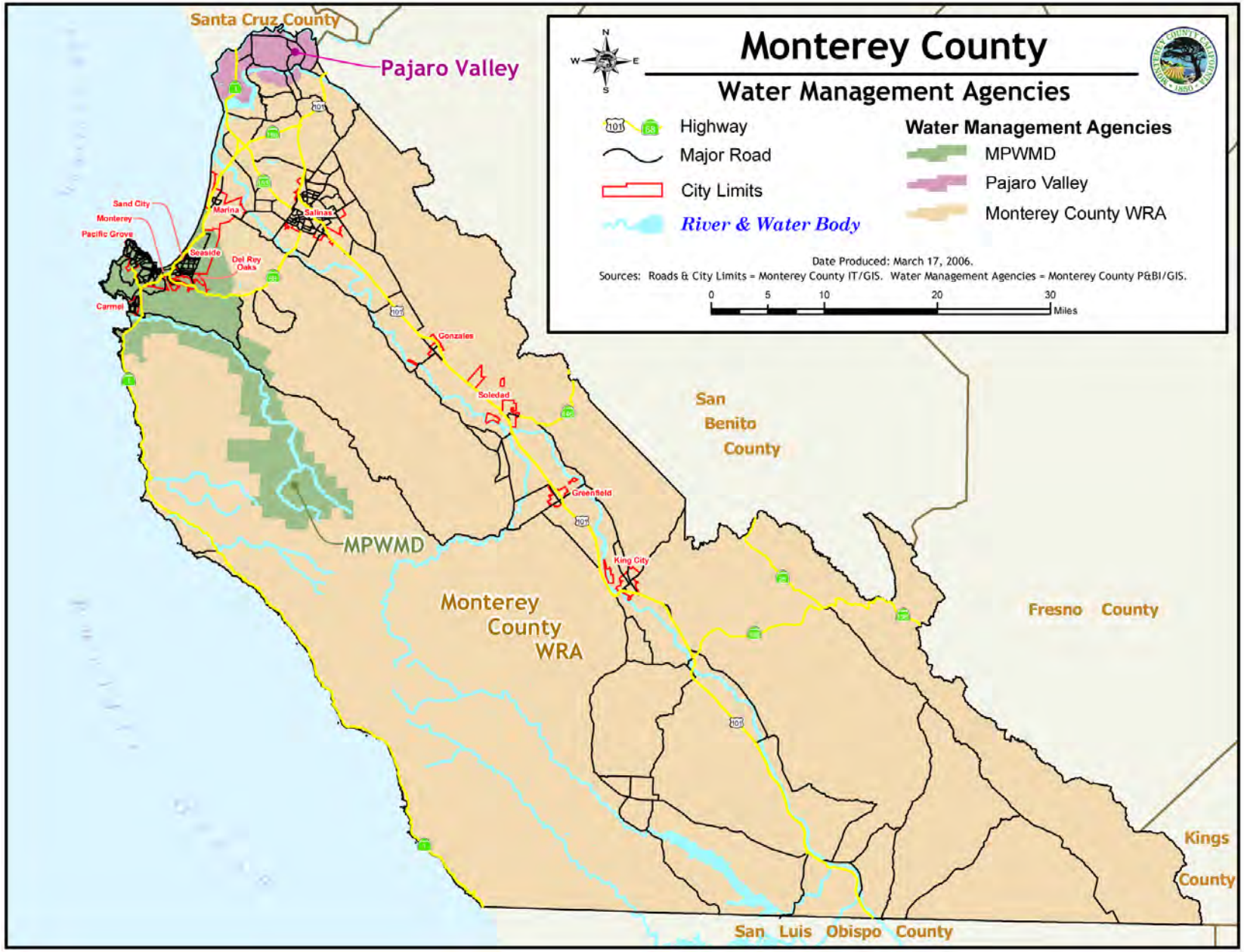
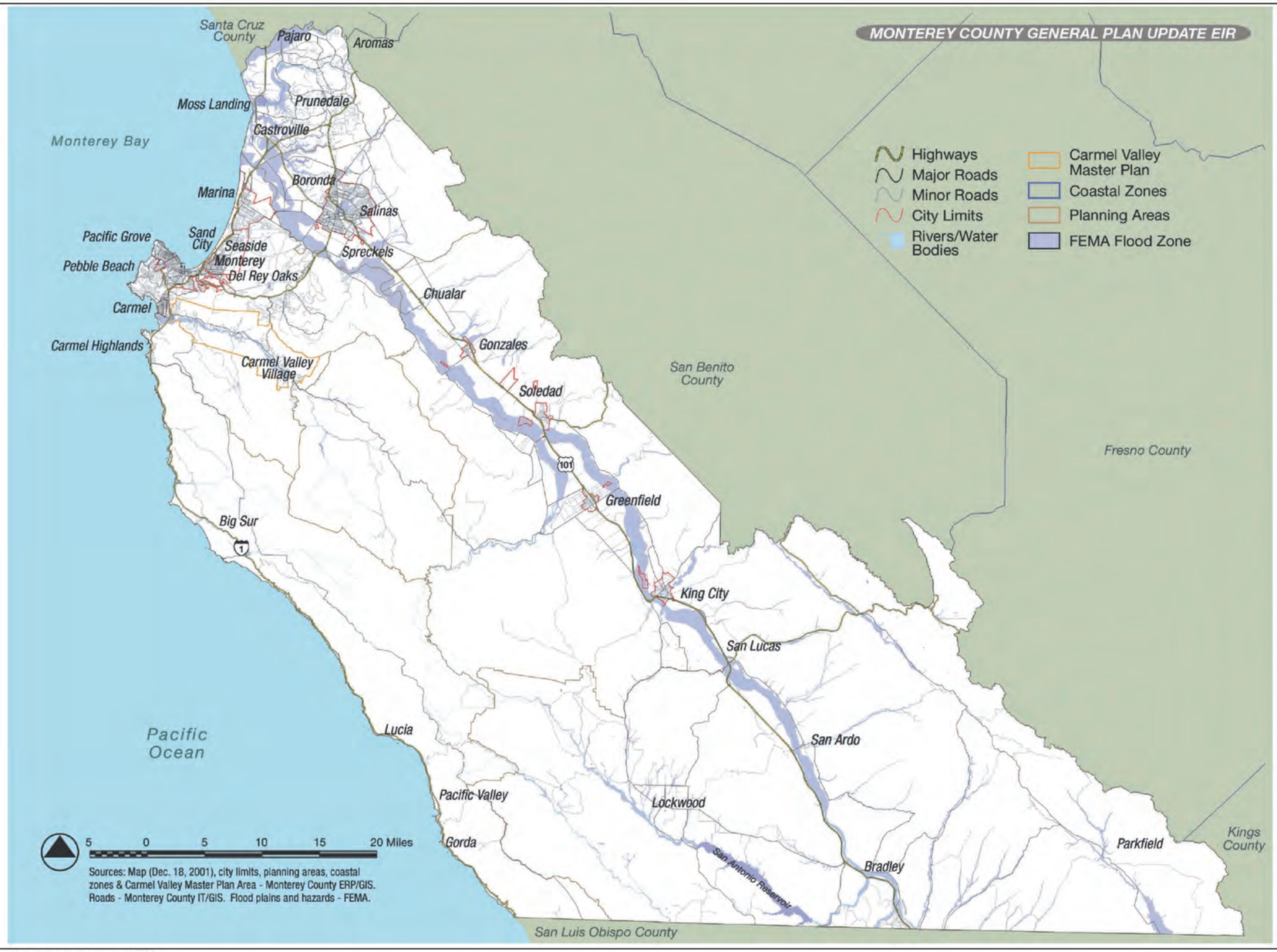
Exhibit 4.3.11
Sea Water Intrusion at North County Groundwater Subareas



00982.07 (06-08)

ICF Jones & Stokes
an ICF International Company

Exhibit 4.3-12
District Map of Water Management Districts



Source: Monterey County 2004 General Plan Update Draft EIR.

NORTH

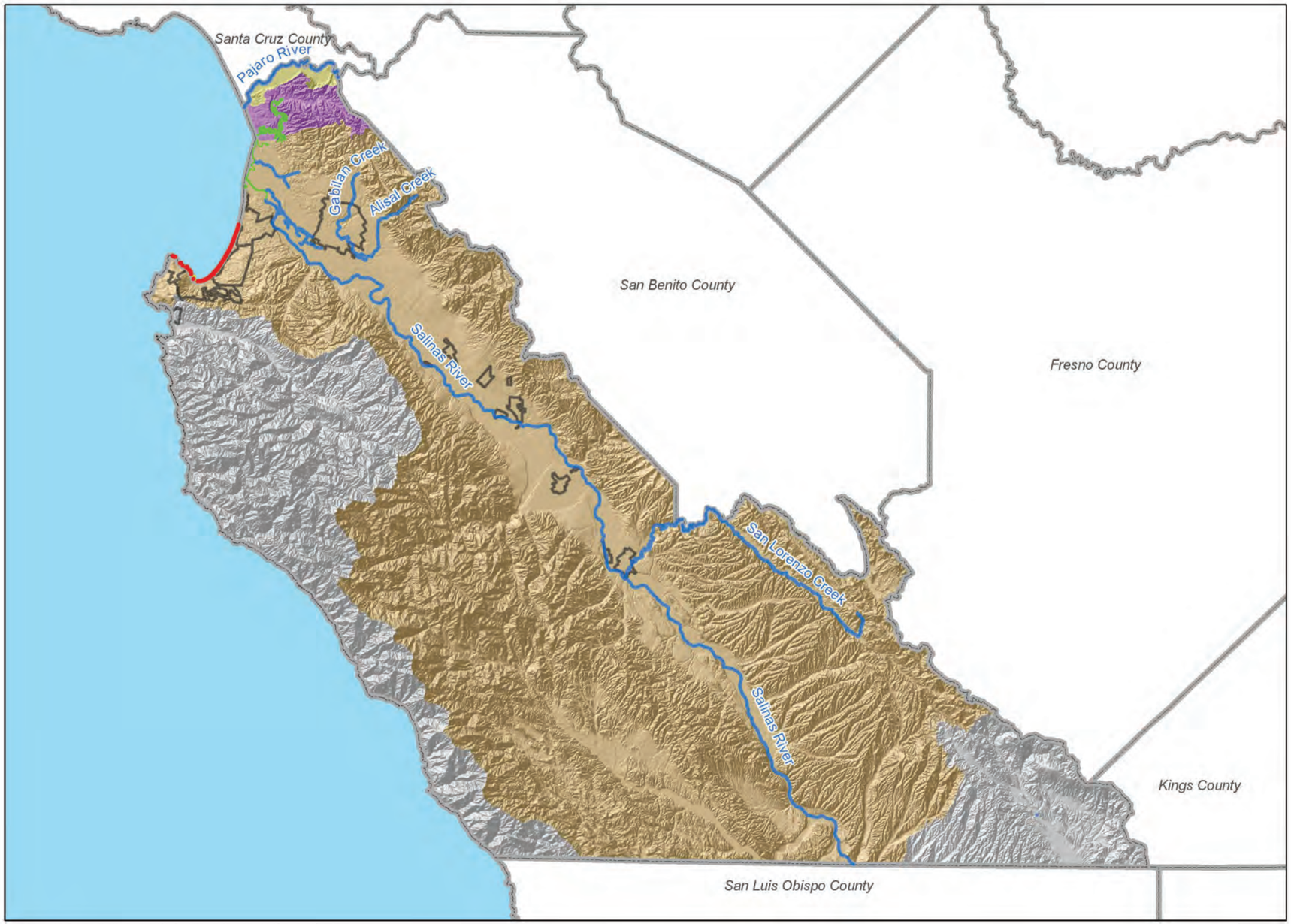
Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

00982.07 (06-08)

ICF Jones & Stokes
an ICF International Company

Exhibit 4.3.13
FEMA Floodplains



Legend

- County Lines
- Incorporated Cities

Watersheds

- Bolsa Nueva
- Pajaro River
- Salinas

TMDL Impared Waterbodies

- Rivers
- Coastal Shorelines
- Estuaries
- Bays and Harbors

Source: Monterey County and State Water Resource Control Board.

NORTH

10 5 0 10 Miles

Michael Brandman Associates

0098.07 (06-08)

MONTEREY COUNTY GENERAL PLAN EIR

ICF Jones & Stokes
an ICF International Company

Exhibit 4.3.14
Impaired Water Bodies

4.4 Geology, Soils, and Seismicity

This section presents a discussion of geologic, soils, and seismic hazards and impacts on development associated with implementation of the 2007 Monterey General Plan. The topics discussed in this section overlap those discussed in other sections of this EIR, including the erosion and groundwater quality discussion in Section 4.3, Water Resources.

4.4.1 Abstract

Monterey County is located in one of the most seismically active regions in the world. The San Andreas Fault traverses the eastern portion of the County, and many areas therein are susceptible to seismic hazards such as strong ground shaking, liquefaction, and earthquake-induced landslides. In addition, erosion hazards are present in the agricultural areas of the Salinas and Pajaro Valleys. Implementation of the 2007 General Plan would result in development and land use activities on individual lots of record and agricultural areas throughout the County. However, all impacts related to geology, soils, and seismicity would be less than significant with mitigation and compliance with federal, state, and local regulations.

4.4.2 Existing Conditions

4.4.2.1 Regional Geology

Much of the unique landscape and resources of Monterey County have their origins in the County's geologic history. Monterey County lies within the California Coast Ranges geomorphic and physiographic province, a region dominated by active tectonics astride the margin between the Pacific and North American tectonic plates. Regional tectonic forces generate an estimated relative motion between the North American and Pacific plates of approximately 2 inches per year. Over time, these forces have created the varied mountainous, valley, and fault-bound blocks seen in Monterey County today. Present-day plate motion is dominantly right-lateral strike slip, with a minor component of convergence or compression, especially along the Big Sur coastline. "Right-lateral strike slip motion" refers to a rightward shift along the fault boundary when viewing toward the fault.

One hundred million years ago, motion was dominantly convergent when the Pacific Plate was being subducted beneath the North American Plate. This subducted oceanic crustal material was metamorphosed under high pressure to become the Franciscan Complex, one of the oldest rock types underlying Monterey County. Another even older block of rocks, known as the Salinian

block, has been rafted northward along the San Andreas Fault. These rocks originated as marine bed on the continental shelf hundreds of miles to the south of their present location, probably west of the Mojave Desert in southern California. During the Miocene Epoch (5 to 24 million years ago), the Pacific and North American plates shifted the direction of their major movement relative to one another, and instead of a convergent margin, the plate boundary became a transform boundary with lateral movement similar to that occurring along the present-day San Andreas Fault system. Movement along the ancient fault system caused the Salinian rocks to be carried northward—after undergoing folding and intrusion by granitic rocks. Thus, the two major rock types underlying Monterey County, the Salinian and Franciscan, both were created as a result of interaction between the Pacific and North American plates.

Plate motion continues today and is manifested along the County's various fault systems. Two faults considered active with evidence of historic or recent movement are the San Andreas and San Gregorio Faults, which form the eastern and western boundaries of the Salinian block. Tectonic movement in the region has resulted in a variety of active fault types. Uplift along faults is largely responsible for the formation of the Coast Ranges, including the Santa Lucia and Gabilan Ranges. In Monterey County, the uplift that formed the Coast Ranges was much more rapid than in other parts of the state. The dramatic cliffs of the Big Sur Coast and steep slopes of the Santa Lucia Mountains are products of this rapid uplift during the Pliocene epoch, more than a million years ago.

The rapid uplift stimulated by active faulting accelerated other physiographic processes that formed major geologic features evident today. Rapid erosion and deposition of soil from the uplifted mountains formed broad alluvial fans of well-drained, nutrient-rich soil. This process occurred over several tens of millions of years. During the Pleistocene era, the sea level fluctuated repeatedly in response to climate changes that formed glaciers in other parts of the world. As the sea level changed, marine sediments were deposited beneath what later became the floor of the Salinas Valley. The interplay of two fundamentally different depositional processes—the erosion and deposition of alluvial material when the sea level retreated, and the deposition of marine layers when the sea advanced—created a complexity of soils and substrate materials. These processes are responsible for what we now consider the valuable agricultural soils of the Salinas Valley. They also formed the sandy stream terrace deposits along both sides of the Salinas Valley.

The changes in sea level created the 180- and 400-foot aquifers and intervening clay layers that separate them beneath the Salinas Valley. Marine deposits constitute the impermeable clay layer that confines the aquifer in the northern Salinas Valley and is the reason the groundwater table is not recharged from the Salinas River north of Chualar.

It was during this same era of fluctuating sea levels and accelerated erosion that Monterey Canyon was formed. Millions of years ago, when the sea had retreated, streams from the ancestral Gabilan Mountains carved the deep canyon. The sea later returned to submerge the canyon in Monterey Bay. The deep

submarine canyon is largely responsible for the extraordinary biodiversity of Monterey Bay. Other submerged features in Monterey Bay are the gravel ledges and rock bars known to fishermen as Italian Ledge and Portuguese Ledge, which are renowned for their abundance of sea life. These features formed as gravel beds and were uplifted by the Monterey Bay Fault zone, which extends from Monterey Bay into upper Carmel Valley.

Uplift resulting from convergence of the Pacific and North America plates has occurred several times in geologic history, but the uplift of the Santa Lucia and Gabilan Mountains to their present position probably occurred during the last 400,000 years. A series of wave-cut, marine terraces around the Monterey Peninsula and south along Highway 1, together with a series of fluvial terraces that flank the Carmel River, record the uplift of the Santa Lucia Range in the last million years.

Active geologic processes are still modifying the land throughout the County. These processes include rivers eroding and depositing sediment, the formation of dunes by wind-borne sand, and landslides in the mountains and hills.

4.4.2.2 Seismicity

Faulting

Faults form in rocks when stresses overcome the internal strength of the rock, resulting in a fracture. Large faults develop in response to large regional stresses operating over a long time, such as those stresses caused by the relative displacement between the North American and Pacific tectonic plates. According to the elastic rebound theory, these stresses cause strain to build up in the earth's crust until enough strain has built up to exceed the strength along a fault and cause a brittle failure. The slip between the two stuck plates or coherent blocks generates an earthquake. Following an earthquake, strain will build again until another earthquake. The magnitude of slip is related to the maximum allowable strain that can be built up along a particular fault segment. The greatest buildup in strain due to the largest relative motion between tectonic plates or fault blocks over the longest time will generally produce the largest earthquakes. The distribution of these earthquakes is a study of much interest for both hazard prediction and the study of active deformation of the earth's crust. Deformation is a complex process and strain due to tectonic forces is not only accommodated through faulting but also through folding, uplift, and subsidence, which can be gradual or in direct response to earthquakes.

Faults are mapped to determine earthquake hazards since they are where earthquakes tend to recur. A historical plane of weakness is more likely to fail under stress and strain than a previously unbroken block of crust. Faults are therefore a prime indicator of past seismic activity, and faults with recent activity are presumed to be the best candidates for future earthquakes. However, since slip is not always accommodated by faults that intersect the surface along traces, and since the orientation of stresses and strains in the crust can shift, predicting

the location of future earthquakes is complicated. Earthquakes sometimes occur in areas with previously undetected faults or along faults previously thought inactive.

In California, a system has been developed by the California Geological Survey and U.S. Geological Survey (USGS) to assess the activity of faults. Under this system, faults are classified active if they have ruptured in the last 11,000 years or within the Holocene period. Other faults are considered inactive.

There are several fault maps for Monterey County. The Fault Activity Map of California shows nearly all faults that are considered active, potentially active, or inactive (Exhibit 4.4.1). The Alquist-Priolo Earthquake Fault Zones Maps show faults that are considered active. In Monterey County, all of the mapped onshore active fault traces lie along the main San Andreas Fault. The southeast County is an active earthquake area with a regular cycle of moderately large earthquakes. Five earthquakes of magnitude 6.0 or greater on the Richter scale have occurred on this segment of the fault since 1901. Fortunately, this area has only a small population, with only the small town of Parkfield containing land within the Earthquake Fault Zone (EFZ).

Other onshore faults in Monterey County include the Berwick, Seaside-Chupines, Cypress Point, Gabilan Creek, Garrapata, Harper, Hatton Canyon, Jolon, Nacimiento, Navy-Tularcitos, Palo Colorado, Reliz, Rinconada, Rocky Creek, San Gregorio, Sylvan, Tularcitos, and Zayante-Vergeles. No major earthquakes have occurred on these faults during the past 100 years.

A final class of faults is those mapped offshore. Since these faults are offshore, they are not a risk for causing a land rupture but could cause seismic shaking and possibly trigger a tsunami. A tsunami may be triggered by an underwater landslide in response to seafloor deformation or may occur from the actual fault rupture motion. This component of risk is separate from the risk of a tsunami generated elsewhere around the Pacific Rim from a large earthquake, such as the earthquake that caused the devastating 2004 tsunami in Sumatra, but the impact could be similar.

In Monterey County, two earthquakes have caused recorded tsunami run-up heights that exceeded 1 meter. The 1960 Chilean Earthquake of estimated magnitude 9.5 (largest ever recorded) caused a 1.1-meter run-up-and killed one person, while the slightly smaller but nearer 1964 Alaska earthquake of magnitude 9.2 caused a 1.4-meter run up and significant boat damage at harbors in the Monterey Bay area. According to the State of California Seismic Safety Commission Report released in December 2005, the maximum estimated run-up height in Monterey Bay is 1 to 2 meters, while 2 to 5 meters is anticipated along the Big Sur Coast. Perhaps the most likely source for a significant tsunami exceeding 1 meter in run-up height would be from a rupture along the Cascadia Subduction zone in the Pacific Northwest, which evidence indicates has not had a major rupture since 1700 and could produce an earthquake in the Richter magnitude 9.0 range. Various tsunami-generating scenarios have been examined by the USGS, the California Geologic Survey (CGS), the California Seismic

Safety Commission, and universities—including the University of Southern California Tsunami Research Center. This research is being used to update the current warning system. The Monterey County Office of Emergency Services is currently examining the updated tsunami research, particularly that completed by USGS and the University of Southern California, to establish an effective community notification or alert system for evacuation. This would be implemented in coordination with the West Coast and Alaska tsunami warning system, which is the primary alert system in the region. Targeted study areas are those that lie below 5 and 10 meters above mean sea level, since these are considered most at risk from inundation by a major tsunami.

Earthquakes

The entire California Coast and Coast Ranges area is prone to earthquakes, including Monterey County. A Richter magnitude 6.0 earthquake that struck near the Town of Parkfield in 2004 caused only minor damage; however, a magnitude 6.5 earthquake near the more populous area of San Simeon in 2003 in neighboring San Luis Obispo County caused major damage to unreinforced masonry structures and killed two people in Paso Robles. Based on history, the probability of such an earthquake occurring in the next few decades that is equal or larger in magnitude in Monterey County is quite likely.

Table 4.4-1 summarizes the year, epicenter, and magnitude of major historical quakes that have affected Monterey County since 1900. Earthquake damage from some of these historical quakes has been significant. The Preliminary Report of the State Earthquake Commission, dated May 31, 1906, described the damage that occurred in Monterey County from the April 1906 San Francisco quake:

> Along the banks of the Salinas River and extending from Salinas to the vicinity of Gonzales, so far as our reports at present show, the bottom lands were more severely ruptured, fissured, and otherwise deformed than in any other portion of the State. The Spreckels Sugar Mill, situated on the banks of the river, suffered more severely probably than any other steel structure in the State.

Other damage from the 1906 earthquake included destruction of the wharf at Moss Landing and destruction of the Hotel Del Monte in Monterey.

Table 4.4-1. Major Historical Earthquakes in the Region

Year	Epicenter	Richter Magnitude at Epicenter
1901	Parkfield	6.4
1906	San Francisco	8.3
1922	Parkfield	6.3
1934	Parkfield	6.0
1966	Parkfield	6.6
1983	Coalinga	6.5
1984	Morgan Hill	6.1
1989	Loma Prieta	7.1
2003	San Simeon	6.5
2004	Parkfield	6.0

Source: U.S. Geological Survey 2006.

While Richter magnitude provides a useful measure of comparison between earthquakes, the Moment magnitude is more widely used for scientific comparison since it accounts for the actual slip that generated the earthquake. Actual damage is due to the propagation of seismic or ground waves from initial failure, and the intensity of shaking is as much related to earthquake magnitude as the condition of underlying materials. Loose materials tend to amplify ground waves, while hard rock can quickly attenuate them, causing little damage to overlying structures. For this reason, the Modified Mercalli Intensity (MMI) Scale provides a useful qualitative assessment of earthquake intensity. The MMI Scale is shown in Table 4.4-2.

Future Earthquake Probability

Both the USGS and CGS are conducting active research on earthquake probabilities throughout California. While much effort has been focused on the San Francisco Bay Area, there are several active projects in Monterey County, such as the San Andreas Fault Observatory at Depth (SAFOD) project near Parkfield, in the southeastern portion of the County. In 2005, a borehole penetrated to a depth of over 13,000 feet in order to install sensitive monitoring equipment used to record the future pattern and slip from earthquakes at depth.

Table 4.4-2. Modified Mercalli Intensity of Earthquakes

Richter Scale Magnitude	Modified Mercalli Intensity	Effects of Intensity
0.1–0.9	I	Not felt except by a very few under especially favorable circumstances.
1.0–2.9	II	Felt by only a few persons at rest, especially on upper floors of building. Delicately suspended objects may swing.
3.0–3.9	III	Felt quite noticeable in doors, especially on upper floors of building, but many people do not recognize it as an earthquake. Standing cars may rock slightly. Vibration like passing a truck. Duration estimated.
4.0–4.5	IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensations like heavy truck striking building. Standing cars rocked noticeably.
4.6–4.9	V	Felt by nearly everyone, many awakened. Some dishes, windows, and so on broken; cracked plaster in a few places; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
5.0–5.5	VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of faller plaster and damaged chimneys. Damage slight.
5.6–6.4	VII	Everyone runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.
6.5–6.9	VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monument walls, and heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving in cars disturbed.
7.0–7.4	IX	Damage considerable in specially designed structures; well-designed frame strictures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
7.5–7.9	X	Some well-built structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Railway lines bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed, slopped over banks.
8.0–8.4	XI	Few, if any masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and landslips in soft ground. Rails bent gently.
8.5 ≤	XII	Total damage. Waves seen on ground. Lines of sight and level distorted. Objects thrown into the air.

Source: Abridged from *The Severity of an Earthquake, USGS General Interest Publication.* Available online from the U.S. Geological Service at: http://pubs.usgs.gov/gip/earthq4/severitygip.html (U.S. Government Printing Office Number 1989-288-913).

The most commonly cited document for earthquake planning is the Probabilistic Seismic Hazard Assessment, which addresses the probability of seismic shaking since that is the primary hazard from earthquakes.

Several seismic sources are present in the County, including several that are not considered at risk from fault rupture under the Alquist-Priolo Earthquake Fault Zoning Act (A-P Act). Documented seismic sources are the Rinconada, San Gregorio (Palo Colorado), Monterey Bay-Tularcitos, Hosgri, and San Andreas Faults.

The present analysis of seismic data indicates that the highest-magnitude earthquakes that would generate the strongest seismic shaking are expected to occur on the San Andreas Fault since this has the highest slip rates and rupture lengths. Other faults with high slip and rupture lengths are the southern segment of the San Gregorio and Hosgri Faults. Both the Rinconada and Monterey Bay-Tularcitos Faults have much lower slip rates and are therefore not expected to produce as large an earthquake as the other faults. Evidence indicates that the San Andreas Fault is the dominant seismic source in the region. Based on this assessment, the strongest peak ground accelerations with a 10%probability of being exceeded in 50 years that are greater than 80% of the acceleration due to gravity are along the San Andreas Fault in the Parkfield area. Such ground acceleration would likely generate shaking of a Mercalli Intensity level of at least IX. Peak ground accelerations are predicted to be less elsewhere, with the strongest peak ground accelerations in the more populous North County between Salinas and San Juan Bautista, where peak ground acceleration as high as 70% of gravity is predicted. While these areas are predicted to have the strongest ground shaking, this assessment does not consider the amplification of seismic waves by shallow surface materials, which could be considerable in looser liquefiable materials far from an earthquake. This hazard is addressed separately under the topics of unstable geologic materials, liquefaction, and other secondary seismic hazards.

4.4.2.3 Geologic Hazards

Geologic hazards pose a substantial danger to property and human safety, and are present due to the risk of naturally occurring geologic events and processes impacting human development. Therefore, the hazard is influenced by the conditions of human development as much as by the frequency and distribution of major geologic events. From a planning point of view, these hazards are potential constraints on the intended use of the land. By analyzing these constraints, the risks can be assessed and may be mitigated to an acceptable level.

Billions of dollars and hundreds of lives have been lost due to geologic hazards in California, many of which are present in Monterey County. Common geologic hazards present in Monterey County include ground rupture along faults, strong seismic shaking, liquefaction, and slope failure.

Fault Rupture

Fault rupture is a seismic hazard that affects structures sited above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault during an earthquake. Typically, this movement takes place during the short time of an earthquake but can also occur slowly over many years in a process known as "creep." The only known creeping fault in the County is the part of the San Andreas between San Juan Bautista and Parkfield. Most structures and underground utilities cannot accommodate the surface displacements of several inches to several feet commonly associated with fault rupture or creep.

In response to the severe fault rupture damage of structures by the 1971 San Fernando earthquake, the State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972. This act required the State Geologist to delineate EFZs along known active faults with a relatively high potential for ground rupture. Faults that are zoned under the A-P Act must meet the strict definition of being sufficiently active and well-defined for inclusion as an EFZ. Properties within EFZs are subject to state regulations that include prohibiting structures for human occupancy being sited within 50 feet of an active fault, requiring geologic reports addressing surface fault hazard, and geologic review of fault reports, among other provisions. Based on fault investigations and evidence of past rupture, the only state-designated EFZs in the County are along the San Andreas Fault.

Ground rupture or cracking outside a mapped active fault trace that is caused from seismic shaking, settlement, or other motion triggered by earthquakes is common. Following the 1989 Loma Prieta earthquake, major ground cracking occurred in the Santa Cruz Mountains, especially along ridgetops; this phenomenon was due to the propagation of seismic waves and probably to differential settlement and lurch cracking.

Ground Shaking

As previously mentioned, strong ground or seismic shaking is a major hazard in the County. Exhibit 4.4.2 depicts predicted peak seismic shaking intensity throughout the County (shaking in percent gravity = "g"). Monterey County is subject to very strong (0.3–0.6 g) to severe (greater than 0.6 g) shaking from the San Andreas, San Gregorio, and Reliz/Rinconada Faults. The entire County is within Seismic Zone 4, considered the most seismically active zone in the United States based on the 2001 California Building Code (adopted by Monterey County) and the 1997 Uniform Building Code. The severity of ground shaking depends on several variables, such as earthquake magnitude, epicenter distance, local geology, thickness and seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Consequently, the hazard from ground shaking is most severe in areas near the San Andreas Fault and in the unconsolidated alluvial areas of the County such as the Salinas and Carmel Valleys.

The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage by falling objects such as bookcases or water heaters, or broken water or gas pipes. In industrial settings, chemical spills are a serious potential hazard. Fire and explosions resulting from ruptured gas pipes are also major hazards associated with strong ground shaking.

The ability to predict which areas will shake the strongest is vital to building design, emergency management, and analysis of related hazards such as liquefaction and earthquake-induced landslides. Although it is not possible to predict the exact level of shaking at a site, it is feasible to assess what level of ground shaking is likely to occur in a given time period.

The most common level of ground shaking used in designing residential and commercial buildings is the design basis ground motion, which has a seismic shaking level (peak ground acceleration) with a 10% chance of being exceeded in 50 years. Expressed another way, this level of ground motion has a 1 in 475 chance of being exceeded each year. Public schools, hospitals, and essential services buildings are designed to resist the upper-bound earthquake, which has a 10% chance of being exceeded in 100 years or a 1 in 949 chance of being exceeded each year.

Liquefaction

Liquefaction is a process in which sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels. The process of liquefaction involves seismic waves passing through saturated granular layers, distorting the granular structure and causing the particles to collapse. This causes the granular layer to behave temporarily as a viscous liquid rather than a solid, resulting in liquefaction.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Large ground motions resulting from liquefaction, especially lateral spreading, can cause damage to buried pipelines. Most pipe breaks during the Loma Prieta earthquake were in areas with significant thickness of liquefiable soil (greater than 3 feet). Broken pipelines represent a serious public safety issue as demonstrated by burning natural gas lines in the 1994 Northridge earthquake and broken water mains in San Francisco in the 1906 earthquake.

Ground shaking levels that are strong enough to cause liquefaction are present in all of the alluvial basins in Monterey County. Liquefaction potential is shown in Exhibit 4.4.3. Areas in Monterey County most susceptible to liquefaction include the Salinas River and floodplain, the Moss Landing and Elkhorn Slough areas, the Carmel River and floodplain, the San Antonio and Lockwood Valleys, and the Peachtree and Cholame Valleys.

Slope Instability and Landslides

Landslides are common in Monterey County due to the combination of the rapidly uplifting mountains, locally fractured and weak rocks, and sometimes intense rainfall along the coast. Many ancient landslides formed during the Pliocene or Pleistocene, between 11,000 and 2 million years before the present. Younger landslides formed during the Holocene, or past 11,000 years, are commonly divided into recent or historic deposits and old landslides. Very young landslides have fresh scarps, disrupted drainages, closed depressions, and disturbed vegetation. Older landslides are modified by erosion, resulting in subdued scarps, reestablished vegetation, and new drainage paths. Soils have formed on some older landslide deposits; however, most soils are poorly developed or absent because of high erosion rates and steep slopes.

Causes of Landslides

There are many causes for landslides, but for geologic hazard evaluation, they can be divided into two main groups: human activity and natural causes. Humans can cause landslides by improperly designing or constructing roads, buildings, and septic systems; excavating the toe of a slope or loading the upper slope; vegetation removal; mining; and human-introduced water sources (lawn watering, leach fields, storm drains, and water lines). Natural causes include steep slopes, weak rock, unfavorably inclined planes of weakness (bedding, joints, and faults), undercutting by streams and waves, intense rainfall, vegetation removal by fire, and earthquakes.

Regardless of whether they are caused by human or by nature, all landslides share some common causes. The first is that slopes become unstable as a result of a decrease in the resisting forces that hold the earth mass in place or an increase in the driving forces that facilitate its movement. The second is that water is a key factor in nearly all landslides because it increases the weight of the soil, thereby increasing the driving forces. Water also acts as a lubricant and serves to decrease the resisting forces. An understanding of water and its effect on slope equilibrium is essential to mitigating landslide hazards.

Most landslides are generated by intense rainfall. Other initiating causes include fires and earthquakes. The temporal pattern of high-intensity, short-duration rainfall is a more important factor in triggering landslides than annual or monthly precipitation totals. Antecedent moisture conditions determine whether large amounts of rainfall will successfully trigger a landslide. If earth materials already contain significant moisture from prior rainfall, the severity of precipitation from a new storm can be less yet can still trigger a landslide. If

other factors are equal, magnitude, intensity, and duration of the storm are important factors that can contribute to hillslope instability.

Landslides are one of the most costly geologic hazards to affect the County and are responsible for millions of dollars in damage to houses and roads. As population growth increases, there is increased development pressure to build on unstable slopes. Proper planning can significantly reduce the risks associated with landslides.

Types of Landslides

Landslides and other forms of slope failure form in response to the long-term geologic cycle of uplift, mass wasting, and disturbance of slopes. Mass wasting refers to a variety of erosional processes from gradual downhill soil creep to mudslides, debris flows, landslides, and rock fall—processes that are commonly triggered by intense precipitation that varies according to climactic shifts. Often various forms of mass wasting are grouped together as "landslides," the term generally used to describe the downhill movement of rock and soil.

Geologists classify landslides into several different types that reflect differences in the type of material and type of movement. The four most common types of landslides are translational, rotational, earth flow, and rock fall. Debris flows are another common type of landslide that is similar to earth flows, except that the soil and rock particles are coarser. "Mudslide" is a term that appears in non-technical literature to describe a variety of shallow, rapidly moving earth flows. All of these types of landslides are abundant in Monterey County.

Deep-seated rotational and translational slides are common in several types of geologic units, especially in the Franciscan Complex rocks. The Franciscan rocks and associated serpentinite are relatively unstable because of their numerous discontinuities (faults, joints, and shear zones) and tend to fail as multiple, nested landslides. Granitic and metamorphic basement rocks also have rotational slides, although to a lesser degree than the Franciscan rocks. Debris flows may be more common. Coastal terrace deposits are susceptible to shallow-seated rotational slides.

Landslides occur in all the geologic units, but translational slides are most common in the Monterey Formation. The Monterey Formation is especially prone to translational slides along clay beds. Good examples of translational landslides in the Monterey Formation are along Carmel Valley Road near Arroyo Seco, where the beds are inclined in the same direction as the slope and are sliding in what geologists refer to as "dip-slope conditions." Under these conditions, slip can occur between the beds. This is most common in clay or shale beds where moisture between the beds can cause expansion of highly plastic clays, such as smectite, and form a zone of weakness where downslope shear stress can exceed the strength of the material and trigger a landslide.

Rock falls along road cuts and steep slopes are widespread in the igneous, metamorphic, and volcanic rocks, especially on high ridges and peaks. Many rock falls are a result of failure along closely spaced intersecting discontinuities,

especially where undercut by roads or streams. Localized areas of rock fall are present throughout the Arroyo Seco watershed. Rocks deposited on hillslopes are subject to rolling or sliding where fire has removed the groundcover that stabilized them. Rock falls typically occur shortly after periods of intense rainfall and during earthquakes. The risk of earthquake-triggered landslides in the County that was tabulated from various geological data mostly provided by the USGS and CGS is included as Exhibit 4.4.4.

Relative susceptibility to landslides can be described according to the following geologic conditions:

- **Low**: Flatlands and low relief terrain, includes mainly Quaternary deposits. In steep terrain, includes mainly crystalline basement rock, volcanic rock, and Cretaceous sandstone. Approximately 5% of the area is likely to fail in a major earthquake.
- **Moderate**: Moderately steep terrain underlain by mainly unconsolidated and weakly cemented sandstone, shale, and Franciscan Complex. Approximately 15% of the area is likely to fail in a major earthquake.
- **High**: Steep terrain underlain by mainly unconsolidated and weakly cemented sandstone, shale, Franciscan Complex, and existing landslides. Approximately 25% of the area is likely to fail in a major earthquake.

Land Subsidence

Land subsidence is a gradual settling or sudden sinking of the Earth's surface owing to subsurface movement of earth materials. The principal causes of land subsidence in the region are groundwater mining, which can cause collapse of aquifer sediments and compaction, drainage of organic soils, underground mining, hydrocompaction, and sinkholes. There is little documentation of widespread subsidence in Monterey County.

Aquifer-system compaction (groundwater mining) results from pumping ground water out of the aquifer faster than it is able to recover through recharge. This has caused considerable subsidence—as much as 15 to 25 feet in parts of the Santa Clara and San Joaquin Valleys. It is less common in the Salinas Valley, perhaps due to relatively less diversion of the Salinas River and lower evapotranspiration rates, particularly near the coastal margin. Subsidence can also result from pumping oil and gas, although this is less common than pumping of groundwater. No significant subsidence was reported for the San Ardo oil field or any other oil fields in the County.

There is little evidence of widespread land subsidence from drainage of organic soils, underground mining, or hydrocompaction in Monterey County. Another form of local subsidence is from sinkholes. These most commonly form when the roof of an underground tunnel or cavity collapses. Sometimes when a water main bursts, the ground above will collapse since the subsurface fill was washed out. Sinkholes also occur where rapid runoff erodes subsurface strata above rock

or another hard layer and eventually causes the surface soils to collapse. This process is sometimes related to gullying of erosive surface soils or very soft rock.

4.4.2.4 Soil Hazards

Soil hazards can be considered a subset of geologic hazards that, due to their complexity, are often considered separately. Soils are directly impacted by land use change and climate patterns since they lie at the surface, where development impacts are concentrated. They are therefore a primary consideration of any geotechnical investigation or soils report for a development. Soil characteristics directly impact land use. Soil ideal for agriculture may not be suitable for building foundations or roadways, while certain erosive or expansive soils are entirely unsuitable to use as engineered fill. Important soil characteristics include the properties related to agricultural and natural habitat resources, as well as those properties related to land development projects. Once site-specific soil properties are known, potential impacts on particular land use projects should be evaluated and necessary mitigations implemented. Improper design for specific soil conditions can cause significant financial losses and can influence the performance and safety of civil works. Similarly, soils often have important agricultural or habitat properties that should be considered in planning decisions. To put the importance of soil characterization in perspective, the State of California has estimated that statewide losses[1] caused by damage from expansive soils from 1970 through 2000 exceeded $150 million and losses from erosion during the same period totaled $565 million.

The complexity of the County's geology is reflected in the 25 major soil associations found in the County. These associations represent hundreds of soil series, which were mapped and analyzed in great detail by the U.S. Department of Agriculture Soil Conservation Service in 1978. The variety of soils is due to the variability of the five major soil-forming factors within the County. These are parent material, climate, topography, biological factors, and time. Coastal soils that formed upon the same parent materials as interior soils may vary widely due to the contrast between the cool and damp maritime climate versus the hot and dry climate of the interior. Common soils associations include the Cieneba-Sur-Junipero (CSJ), Sheridan-McCoy, Santa Lucia Reliz (SLR), Oceano, Garey-Greenfield (OGG), Arnold-Santa Ynez, Shedd (ASS)-Los Osos-Nacimiento (LN) and Lithic Xerothents-Gaviota-Plaskett (LXGP).

The Natural Resources Conservation Service has interpreted the behavior of the soils they mapped under various circumstances and examined their suitability for particular land uses. The soil interpretations most useful for planning and land use decisions are runoff potential; erosion hazard; shrinking and swelling behavior; and suitability for agriculture, shallow excavations, sanitary landfills, septic tank absorption fields, roads and streets, dwellings and small commercial buildings. Soil interpretations for farmlands have particular importance in Monterey County, which contains over 300,000 acres of productive farmlands.

[1] The estimate assumes that agricultural and engineering practices are consistent through the 30-year period.

The classifications used for the farmlands inventory, in order of decreasing productivity, are Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Prime Farmlands occur in scattered acreages throughout the County, but the most extensive acreages occur on the deep, rich soils of the Salinas Valley, sometimes referred to as the "nation's salad bowl." Soil, climate, and a third component—water—combine to help make Monterey County one of the most agriculturally productive areas in the world. Monterey County does not have any designated Farmland of Local Importance.

Erosion

Erosion can be defined as the wearing away of the land surface by flowing water, waves, or wind, or by such process as mass wasting and corrosion. Erosion not only leads to soil loss but also results in degraded water quality, unwanted soil deposition leading to property damage, and increased danger from flooding. In Monterey County, erosion is a significant force that affects three distinct types of land use: agricultural land, residential development, and coastal bluffs.

Soils can sometimes be quantitatively rated as to their erosion hazard potential. The relative erosion hazard is depicted at a County-wide scale in Exhibit 4.4.5.

Agricultural Erosion

Soil loss or soil erosion is most common in the North County, especially where strawberries are grown on moderately steep hillsides in the Aromas Sand Formation. Loamy sand soils developed on top of sandy dunes or slopes are highly erosive; moderately steep slopes greater than 15% that would not normally be considered erosive if underlain by more cohesive soil or rock are particularly susceptible to scour from wind or from being washed away through runoff, especially when bare. In the Salinas Valley, erosion and deposition are directly related through flooding, where sediment is picked up in one area, transported, and deposited in another. This includes sediment eroded from stream banks due to scouring flow. There is also general erosion on terrace surfaces and wind erosion of bare soils, especially those with low cohesion that have formed from sandy deposits. Due to grading and terracing on unstable slopes, erosion is sometimes triggered on even moderately steep slopes, especially in unvegetated or unplanted areas. Outside the Salinas Valley, there are wide-open undeveloped areas such as in the South County and Diablo Range. In these areas, a substantial proportion of soil erosion may be attributed to livestock grazing, where soil that is bare from compaction and trampling may concentrate runoff and lead to rilling or gullying of the ground. This problem often can be controlled through careful management of rangeland and avoidance of overgrazing. It is also important to consider the benefits of grazing, such as the reduction of overgrown vegetation that raises the fire hazard.

Hillside Development Erosion

Erosion is commonly concentrated on steep slopes; therefore, soil disturbance or grading on steep slopes is likely to trigger erosion unless controlled. Common

causes of erosion are (1) site grading and disturbance of soil and rock during construction, where runoff and improper drainage can trigger erosion and improper drainage; and (2) post-construction drainage. Problems during construction include gullying across freshly graded slopes that have not been seeded or mulched for the winter, slumping of loose soils, and soils or rock fall over steeply cut banks. Poorly graded roads also may allow water to concentrate, resulting in erosion and deposition; in extreme cases, ruts can channel water, creating washouts that can trigger minor debris flows or landslides. Post-construction erosion is mainly a result of poorly designed and maintained drainage structures such as culverts, pipe down-drains, and ditches. Concentrated runoff may erode soil simply by the large impact force that can be generated from high-velocity flows, while sediment-laden water from turbid runoff often can cause drainageways to become clogged and may trigger further erosion by redirecting flow into areas unable to handle the concentrated runoff.

Coastal Erosion

Coastal erosion of dunes, cliffs, and bluffs is a serious problem in Monterey County. Coastal erosion of cliffs is concentrated along the Big Sur Coast due to very steep terrain; but there are locally severe erosion problems in the south Monterey Bay area, mainly due to highly erosive windblown sand and particularly in the incorporated and unincorporated areas around Marina, Sand City, Monterey, and Fort Ord. In this area, the coastline is one of low relief, with sand dunes present from the Pajaro River southward to Carmel, and much erosion is due to movement of unstable windblown sand—especially where vegetation has not been established. Much beachfront property is also lost from high surf and wave action that is concentrated during winter storms. This sand may be redistributed along the coast in a process known as long-shore or littoral drift. When sand is depleted or cut off by an obstruction, the result is often severe; with no new sand to reform the beach, a major retreat of the coastline occurs. This problem is forecast to get worse based on some projections of global warming causing the sea level to rise.

In the Marina State Beach area, bluffs and dunes retreated at an average rate of 5 to 7 feet per year from 1937 to 1983. For example, Stilwell Hall at the former Fort Ord Officer's Club was originally built 300 feet from the beachfront in 1943, but by 2000 was already being threatened by beach waves and has since been demolished. The sewer outfall at Fort Ord also experienced major erosion since construction in 1962, where the beach retreated 175 feet in 21 years. As much as 40 feet of retreat occurred during the storms of 1982 and 1983 when there was an El Niño climatic pattern. Major retreat of the beach has also occurred in the Sand City area, where the beach has retreated 6 to 8 feet per year on average between 1956 and 1975. Some of this is due to sand mining operations.

South of Carmel, the coastline steepens and bluffs are the dominant landform due to the high rates of tectonic uplift. In contrast to the uniformly high erosion rates of the sand dunes along southern Monterey Bay, the erosion rates on the Big Sur Coast differ depending on the type of bedrock, degree of fracturing and weathering, ground water seepage, and exposure to waves. Generally, the

granitic and metamorphic rocks are relatively resistant to erosion, except near faults and other areas of intense fracturing and weathering. Some rocks of the Franciscan complex are intrinsically weak and more readily eroded compared to granitic and metamorphic rocks. In addition, several landslides along State Highway 1 are caused by erosion from violent wave action.

The least resistant units to erosion are the coastal terrace deposits. The terrace deposits are typically far enough above sea level that they are not subject to direct wave action. However, they are subject to erosion from surface water and seepage. Because of their relatively porous texture, large quantities of water can infiltrate into terrace deposits. Groundwater is a major influence in cliff erosion. Erosion takes place through a process known as "spring sapping," in which bluffs are undermined by flowing water loosening rock particles and chemically dissolving the cement that binds the particles. A similar process is "piping," in which water flows through open channels such as burrows, eroding and enlarging them. Non-natural sources of water such as irrigation, septic effluent, and urban runoff add significant amounts of water that could contribute to sapping and piping. Lawn and garden watering contributes the equivalent of 70 to 80 inches per year of rain and 500 to 800 gallons per day of septic effluent. Under certain hydrogeologic conditions, some of this water could contribute to erosion in the form of mass wasting (or even landslides) by groundwater.

Other influences on coastal erosion include changes in climate. Both short-term events such as El Niño storm cycles and long-term events such as rising sea level will increase erosion rates along the coast. Therefore, structures sited along the coast must account for these extreme events.

Unstable Geologic Units

Unstable geologic units are those that lack the integrity to support human-made improvements such as buildings and roadways. This may be due to lack of strength, lack of compaction or low density, or unsuitability of material for a particular foundation. Unstable geologic units may also be initially stable and lose stability due to improper drainage or buildup of pore pressure that causes a reduction in strength. Major problems include settlement, lurch cracking, differential settlement, and expansion. Instability is often due to a range of factors that may be difficult to quantify but can be collectively attributed to unstable native materials and unstable fill soils. Unstable geologic units include soft marshy soils that are prone to subsidence, sandy soils with shallow groundwater prone to liquefaction, and friable or poorly indurated rock such as the Monterey Formation or alluvium that can fail on slopes. Particularly unstable are fill soils or debris placed over marshes and wetlands to create new land. This includes a variety of heterogeneous mixtures of loose to very well consolidated gravel, sand, silt, clay, rock fragments, organic matter, and human-made debris.

Expansive Soils

Expansive soils shrink and swell depending on moisture level as the clay minerals in these soils expand and contract. Soils with moderate or high expansion potential are susceptible to shrinking and swelling due to fluctuations in moisture content and are a common cause of foundation deterioration, pavement damage, cracking of concrete slabs, and shifting of underground utilities. According to the California Building Code, soils with an expansion index exceeding 91 are considered highly expansive; such soils would typically have a liquid limit of 40 or more and plasticity index exceeding 15. These soils are undesirable for use as engineered fill or subgrade directly underneath foundations or pavement, and must be replaced with non-expansive engineered fill or require treatment to mitigate their expansion potential.

4.4.2.5 Other Hazards

Tsunami

Tsunamis are ocean waves caused by large earthquakes and landslides that occur near or under the ocean. When tsunamis approach shore, they behave like a very fast-moving tide that extends far inland. Powerful tsunamis, such as the one that struck Southeast Asia in December 2004, can level structures and result in significant loss of human life. Tsunami waves can persist for many hours because of complex interactions with the coast. The most recent tsunami to strike California occurred in Crescent City in 1964. Currently, efforts are underway to map tsunami inundation zones along the California coast.

Seiche

Seiches are standing waves set up on rivers, reservoirs, ponds, and lakes when seismic waves from an earthquake pass through the area. Effects of seiches are similar to those of a tsunami.

Mudflow

A mudflow (used interchangeably with “debris flow” or “lahar”) is a flowing mixture of water-saturated debris that moves downslope under the force of gravity. Mudflows consist of material varying in size from clay to blocks several tens of meters in maximum dimension. When moving, they resemble masses of wet concrete and tend to flow downslope along channels or stream valleys. Mudflows are formed when loose masses of unconsolidated wet debris become unstable.

The major hazard to human life from mudflows is from burial or impact by boulders and other debris. Buildings and other property in the path of a mudflow

can be buried, smashed, or carried away. Because of their relatively high density and viscosity, mudflows can move and even carry away vehicles and other objects as large as bridges.

4.4.3 Regulatory Framework

4.4.3.1 Federal Regulations

Uniform Building Code

The Uniform Building Code (UBC) defines different regions of the United States and ranks them according to their seismic potential. There are four types of these regions—Seismic Zones 1 through 4, with Zone 1 having the least seismic potential and Zone 4 having the highest. Monterey County is located in Seismic Zone 4; accordingly, any future development would be required to comply with all design standards applicable to Seismic Zone 4.

Disaster Mitigation Act of 2000

The Federal Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390) emphasizes the need for state, tribal, and local entities to closely coordinate disaster mitigation planning and implementation efforts.

Section 322 of the DMA requires adoption of a state mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: standard and enhanced. States that demonstrate an increased commitment to comprehensive mitigation planning and implementation through development of an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program (HMGP). Section 322 also establishes a new requirement for local mitigation plans and authorizes up to 7% of HMGP funds available to a state to be used for development of state, tribal, and local mitigation plans.

Provisions of the DMA 2000 include:

- funding for disaster planning and mitigation;
- development of experimental multi-hazard maps to better understand risk;
- establishment of state and local government infrastructure mitigation planning requirements (Advance Infrastructure Mitigation [AIM]);
- defining how states can assume more responsibility in managing the HMGP;
- adjusting ways in which management costs for projects are funded; and

- establishment of performance-based standards for mitigation plans and requiring states to have a program (AIM) to develop County government plans. Should counties fail to develop an infrastructure mitigation plan, their federal share of damage assistance would be reduced from 75 to 25% if there was recurrent damage to the same facility or structure in response to the same type of disaster.

To maintain compliance with DMA 2000 and receive full federal funding, Monterey County and its cities prepared the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) that was adopted in September 2007 by those jurisdictions. This detailed plan identifies potential natural and man-made hazards, assesses their likely risk, and includes mitigation methods to reduce risks. The potential hazards identified in the MJHMP include coastal erosion, dam failure, earthquake, flood, hazardous materials event, landslide, tsunami, wildland fire, and windstorm. Mitigation measures proposed to address these risks Countyincluded preventative actions, property protection techniques, natural resource protection strategies, structural projects, emergency services, and public information and awareness activities.

4.4.3.2 State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The primary purpose of the A-P Act is to mitigate the hazard of fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. The A-P Act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards.

The A-P Act requires the State Geologist (Chief of the California Geologic Survey) to delineate EFZs along faults that are sufficiently active and well defined. "Sufficiently active faults" show evidence of Holocene surface displacement along one or more or their segments. "Well-defined faults" are clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The boundary of an EFZ is generally about 500 feet from major active faults, and 200 to 300 feet from well-defined minor faults. The A-P Act dictates that cities and counties withhold development permits for sites within an Alquist-Priolo (A-P) Zone, until geologic investigations demonstrate that the sites are not threatened by surface displacements from future faulting.

A-P Zone mapping has been completed by the State Geologist for all of the quadrangles in Monterey County. The maps have been distributed to all affected cities, counties, and state agencies for their use in developing planning policies and controlling renovation or new construction. Local agencies must regulate most development projects within the A-P Zones. Projects include all land divisions and some structures constructed for human occupancy. While state law exempts single-family wood-frame dwellings and steel-frame dwellings that are less than three stories and are not part of a development of four units or more, local regulations may be more restrictive than state law.

Before a project can be permitted within an identified EFZ, cities and counties require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. This requires that a site-specific evaluation and written report prepared by a state-licensed geologist document the occurrence or absence of an active fault. This commonly requires trenching to identify any offset strata but also may be completed through simple observation of surface fault expression. If an active fault is identified, a structure intended for human occupancy cannot be placed over the trace of the fault and must be set back, generally no closer than 50 feet from the fault.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The CGS is the principal state agency charged with implementing the SHMA. Pursuant to the SHMA, the CGS is directed to provide local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The goal is to minimize loss of life and property by identifying and mitigating seismic hazards. The seismic hazard zones delineated by the CGS are referred to as "zones of required investigation." Site-specific geotechnical hazard investigations are required by SHMA when construction projects fall within these areas. Seismic hazard maps covering Monterey County for both liquefaction risk and earthquake-induced landslides are presented as Exhibits 4.4.3 and 4.4.4.

California Building Standards Code

Title 24 of the California Code of Regulations, also known as the California Building Standards Code, sets forth minimum requirements for building design and construction. The California Building Standards Code is a compilation of three types of building standards from three different origins:

a) Building standards that have been adopted by state agencies without change from building standards contained in national model codes;

b) Building standards that have been adopted and adapted from the national model code standards to meet California conditions; and

c) Building standards, authorized by the California legislature, constituting extensive additions not covered by the model codes that have been adopted to address particular California concerns.

In the context of earthquake hazards, the California Building Standards Code design standards have a primary objective of ensuring public safety and a secondary goal of minimizing property damage and maintaining function during and following seismic event. Recognizing that the risk of severe seismic ground motion varies from place to place, the California Building Standards Code

seismic code provisions vary depending on location (Seismic Zones 0, 1, 2, 3, and 4—with 0 being the least stringent and 4 being the most stringent). Monterey County is located in Seismic Zone 4.

California Department of Transportation Seismic Safety Retrofit Program

The California Department of Transportation (Caltrans) Seismic Safety Retrofit Program was established by emergency legislation (SB 36X) after the October 17, 1989, Loma Prieta earthquake. The purpose of this program is to evaluate all publicly owned bridges in California and to take actions necessary to prevent their collapse due to earthquakes. The local component of the Seismic Safety Retrofit Program provides funding and other assistance to cities and counties for evaluating bridges and improving their resistance to seismic shaking.

4.4.3.3 Local Regulations

Monterey County Grading and Erosion Control Ordinances

Chapters 16.08 and 16.20 of the Monterey County Code regulate grading and erosion control, respectively. These ordinances supplement the regulations from the California Building Standards Code, which addresses standards for all grading construction. These ordinances help to maintain safe grading conditions and erosion control in order to avoid potentially harmful impacts related to property, the public, and environmental health. Slope failure or bank collapses due to improper grading and erosion of sediment into waterways are two critical hazards.

Monterey County Grading Ordinance

The County grading ordinance generally regulates grading involving more than 100 cubic yards of excavation and filling. Minor fills and excavations (cuts) of less than 100 yards that are not intended to provide foundation for structures, or that are very shallow and nearly flat, are typically exempt from the ordinance, as are shallow footings for small structures. Submittal requirements for a County grading permit include site plans, existing and proposed contour changes, an estimate of the volume of earth to be moved, and geotechnical (soils) reports. Projects involving grading activities over 5,000 cubic yards must include detailed plans signed by a state-licensed civil engineer.

Grading is not allowed to obstruct storm drainage or cause siltation of a waterway. All grading requires that temporary and permanent erosion control measures be implemented. Grading within 50 feet of a watercourse, or within 200 feet of a river, is regulated in the Zoning Code Floodplain regulations. Work in the Salinas River and Arroyo Seco River channels is exempted if it is covered by a U.S. Army Corps of Engineers 5-year regional 404 permit, approved by the

California Department of Fish and Game, and approved by the Monterey County Water Resources Agency.

In addition to grading ordinance provisions, the Zoning Code (Chapter 1.64.230) details specific regulations for development on slopes in excess of 30%, including conformance with the grading ordinance and erosion control requirements. Specific geotechnical or engineering geologic investigation requirements include the following:

1) Presentation of data regarding the nature, distribution, and strength of existing soils.
2) Recommended grading procedures and design criteria for corrective measures when necessary, including buttress fills.
3) Examination and recommendations to maintain slope stability.
4) Description of the site geology of the site and the effect of geologic conditions on the proposed development.
5) Incorporation of approved report recommendations in the grading plans and specifications. (Ord. 2535 110, 1979.).
6) Completion of a liquefaction study, where applicable and the potential for liquefaction, should there be:
    a) Shallow ground water at 50 feet (15.24 meters) or less,
    b) Unconsolidated sandy alluvium,
    c) Site within Seismic Zone 4.

Design standards in the ordinance include requirements for fill slopes, cut slopes, and drainage controls.

Monterey County Erosion Control Ordinance

The County Erosion Control Ordinance generally prohibits development on slopes greater than 30%, requiring completion of an Erosion Control Plan, control of runoff, avoiding creek disturbance, regulating land clearing, and prohibiting grading activities during the winter. Enforcement of the Erosion Control Ordinance is by the County Director of Building Inspection.

Monterey County Local Coastal Program

The California Coastal Act requires all development within the coastal zone to comply with policies and regulations enacted by the state and the California Coastal Commission (CCC) for the protection of the coast and its resources. Under the Coastal Act, the CCC delegates land use regulation to cities and counties for which a Local Coastal Program (LCP) has been certified. Regulation within the coastal zone is covered under Title 20 of the Monterey County Code, which embodies the Commission-certified Monterey County LCP. Coastal regulations are established by several local coastal land use plans under the LCP.

To carry out the Coastal Act policies relating to coastal hazards, the Monterey County LCP has provisions to address shoreline hazards, steep slopes and unstable areas, wildland fire, and coastal flooding. The LCP identifies high hazard areas specific to each coastal planning area. Monterey County's LCP consists of four planning areas: North County–Coastal, Del Monte Forest, Carmel Area, and Big Sur Coast.

The *North County Land Use Plan* identifies seismic and geologic high hazard areas as:

a) zones ⅛-mile wide on each side of active or potentially active faults;

b) areas of Tsunami Hazard;

c) areas indicated as "Underlain by Recent Alluvium" and "Relatively Unstable Upland Areas" in the County Seismic Safety Element;

d) Geotechnical Evaluation Zones IV, V, and VI on the County Seismic Safety Element maps;

e) Geotechnical Evaluation Zones V and VI on the Monterey Peninsula Map of the County; and

f) the 100-Year Floodplain and areas classified as having a high to extreme fire hazard through application of the California Department of Forestry and Fire Protection criteria.

The Carmel Area Land Use Plan reflects this list except that it also includes existing landslides and adds consideration of the Fire Hazard Severity Scale in determining fire hazards. The Del Monte Forest Land Use Plan identifies high hazard areas related to seismic and fire risk. Slopes over 30% in combination with unstable bedrock or soils are noted as potentially hazardous, and the Cypress Point fault (potentially active) and minor faulting in the Pescadero Canyon area are the most significant local hazards. Most forested areas of the Del Monte Forest are considered high fire hazard areas. While not specifically identified as a high flood hazard area, the Del Monte Forest Land Use Plan policies address areas subject to potential wave run-up and prohibition of development on bluff faces. The Big Sur Coast Land Use Plan notes that the entire area presents a high degree of hazards, including seismic, geologic, flood, and fire hazards.

Monterey County Health and Safety Element

California Planning Law (Government Code Section 65300 et seq.) requires the County to adopt a Safety Element as an integral part of its General Plan. Safety elements address evacuation routes, traffic congestion, and peak occupant and traffic loads for structures; water supply requirements; and minimum road widths and clearance around structures—as those items relate to identified fire and geologic hazards. The intent of the state-mandated Safety Element is to ensure that local governments develop the regulatory tools necessary to protect public health, safety, and welfare against disasters and hazards.

The Safety Element is expected to establish objectives and policies that will protect the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, dam failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic and geologic hazards; flooding; and wildland and urban fires.

The current Monterey County Health and Safety Element was updated in 2004 and again in 2006. This element incorporates two of the seven state-mandated General Plan elements—the Safety Element and the Noise Element. The Safety Element is included in the 2007 General Plan update and incorporates the state requirements for contents of both the safety and noise elements.

4.4.4 Project Impacts

4.4.4.1 Methodology

Widely available industry sources were examined to document regional and local geology. Information regarding regional geology and seismically induced hazards was taken from various sources of the California Department of Conservation, California Geological Survey (CDC, CGS). Information about soil characteristics was derived from the Soil Conservation Service's Soil Survey of Monterey County. In addition, information related to other seismic hazards, such as landslide and liquefaction zoning, was taken from CDC, CGS maps as well as the existing 2006 Monterey County General Plan and General Plan EIR. Where potential geological hazards are identified for a particular planning area within Monterey County, such hazards are expected to affect any potential development in that planning area.

4.4.4.2 Thresholds of Significance

Implementation of the 2007 General Plan would result in a potentially significant impact relative to geology, soils, and seismicity if it would:

a) expose persons or structures to geologic hazards such as fault rupture, ground shaking, liquefaction, or landslides;

b) result in substantial soil erosion or loss of topsoil;

c) permit development on unstable geologic units or soils;

d) permit development on expansive soils;

e) permit the use of septic or alternative wastewater systems in areas where soils are incapable of supporting such systems; or

f) expose persons or structures to inundation by tsunami, seiche, or mudflow.

4.4.4.3 Impact Analysis

Buildout of the 2007 General Plan to the 2030 and 2092 planning horizons could result in impacts related to the following geologic hazards: fault rupture, ground shaking, liquefaction, landslides, erosion, expansive soils, septic tanks, and tsunami/seiche/mudflow. Adverse impacts on geology, soils, and seismicity associated with implementation of the 2007 General Plan are detailed in this section in the discussions for Impacts GEO-1 through GEO-8. Buildout of the General Plan through 2092 would involve development of all available lots now known (41,000 plus units) based on the dwellings per year from the 2030 AMBAG growth estimate. As geologic impacts are location-oriented and buildout to 2092 proposes growth for the same locations as under the 2030 planning horizon, buildout to 2092 would potentially result in similar adverse impacts on geology, soils, and seismicity as those described in this section for 2030 planning horizon impacts. The 2007 General Plan and Area Plans policies set forth comprehensive measures to avoid and minimize adverse impacts related to geology, soils, and seismicity, to the maximum extent practicable. The 2007 General Plan and Area Plans policies summarized below in this section identify seismically sensitive areas and mitigation measures to reduce impacts related to potential impacts. It is anticipated that building codes, grading ordinances, and seismic measures to reduce the potential for geologic hazards would evolve and become more effective over time.

It should also be noted that one of the expected effects of global climate change is rising sea levels. This would expand inland the coastal areas potentially affected by tsunami. Climate change impacts are addressed in the Climate Change section of this EIR.

Fault Rupture

Impact GEO-1: Implementation of the 2007 General Plan could expose persons and property to fault rupture hazards. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan to the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures could be exposed to geological hazards such as fault rupture. Fault rupture as a result of seismic shaking would be harmful because it could cause structural failure and collapse of poorly built structures and cause nonstructural building elements to fall. This could result in utility lines (electrical and natural gas) breaking presenting a hazard to occupants and nearby persons, and damage to contents.

Faults considered recently active by the CGS are the San Andreas and Palo Colorado-San Gregorio Fault systems. Since the Palo Colorado-San Gregorio Fault is mapped underneath the Monterey Bay, only the San Andreas Fault has mapped active traces onshore at risk for fault rupture. These fault traces are included in A-P Zones. However, the 2007 General Plan would not result in more persons and structures proximate to the San Andreas fault or its respective A-P Earthquake Fault Zones (refer to Exhibit 4.4.1). Finally, unexpected ground rupture from a previously unmapped active fault is possible but unlikely, due to the considerable mapping and fault research completed throughout the County.

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized below set forth comprehensive measures to minimize adverse fault rupture impacts.

Safety Element

Safety Element Policies S-1.1, S-1.2, S-1.4, S-1.5, and S-1.8 (consider fault rupture hazards, restrict development in mapped hazard areas, and enforce the A-P Act) direct future growth away from areas of potential fault rupture such as A-P Earthquake Fault Zones for the purpose of avoiding or minimizing geologic hazards. Policies S-1.3, S-1.6, and S-1.7 (establish conditions/standards for geotechnical studies) would help to avoid fault rupture hazard exposure risks in future development by implementing geotechnical study recommendations.

Area Plan Policies

There are no additional Area Plan policies related to fault rupture hazards.

Master Plan Policies

Fort Ord Master Plan

Supplemental policies in the Fort Ord Master Plan address fault rupture hazards. Seismic and Geologic Hazards Policies A-1 and A-2 (Countydevelop standards for minimizing seismic risk and use development review process) would help to avoid fault rupture hazard exposure risks with future development by implementing standards and geotechnical study recommendations. Seismic and Geologic Hazards Policy A-3 (Countyidentify areas of high seismic risk) would help to avoid fault rupture hazard by restricting new development in such high seismic risk areas.

Significance Determination

Implementation of the 2007 General Plan within the 2030 planning horizon could potentially result in adverse impacts related to fault rupture. However, the 2007 General Plan would not result in more persons and structures proximate to the San Andreas fault or its respective A-P Earthquake Fault Zones, and much of the proposed development within the planning areas near other County faults would be agricultural (wine-industry-related). Risks to agricultural development from ground rupture are minimal compared to risks to denser urban development. Most notably, structures (e.g., winery structures containing wine barrels) would not be permitted within 50 feet of an active fault. In addition to not locating structures or development across a known or suspected active fault trace, a primary mitigation for reducing risk would be requiring that new construction in Monterey County comply with California Building Code (CBC) Zone 4 seismic building criteria standards. These standards are designed to reduce ground rupture risks to acceptable levels, and contain construction requirements to minimize potential loss of life during an earthquake. Development in accordance with the 2007 General Plan, adherence to the A-P Act, and enforcement of the CBC would ensure that impacts related to potential fault rupture would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies and Area Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies and respective Area Plan policies as well as adherence to CBC standards would reduce impacts related to potential fault rupture to a less-than-significant level.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards such as fault rupture.

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized above identify high seismic risk areas and place restrictions on future development in those areas to minimize adverse fault rupture impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to fault rupture. However, the 2007 General Plan would not result in more persons and structures proximate to the San Andreas fault or its respective Alquist-Priolo Earthquake Fault Zones. Nonetheless, new structures would not be permitted within 50 feet of an active fault, and new construction throughout the County would comply with CBC Zone 4 seismic building criteria standards that are designed to reduce ground rupture risks to acceptable levels. Development in accordance with the 2007 General Plan, adherence to the Alquist-Priolo Act, and enforcement of the CBC would ensure that impacts related to potential fault rupture would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies and Area Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies and respective Area Plan policies as well as adherence to the Alquist-Priolo Act and CBC standards would reduce impacts related to potential fault rupture to a less-than-significant level.

Ground Shaking

Impact GEO-2: Land uses and development consistent with the 2007 General Plan could expose people or structures to substantial adverse seismic effects, including the risk of loss, injury, or death involving strong seismic ground shaking. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan within the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures would be exposed to geological hazards such as ground shaking. Strong seismic ground shaking can be harmful, because it could cause structural failure and collapse of poorly built structures and could cause nonstructural building elements to fall, presenting a hazard to occupants and damage to contents.

Specifically, the 2007 General Plan would result in more persons and structures in and near areas of high probability for strong ground shaking in Pajaro and areas of high probability for moderate ground shaking throughout

the Salinas Valley stretching from Castroville to Bradley (refer to Exhibit 4.4.2). While strong ground shaking is *probable* in these areas, it is *possible* throughout the County from several seismic sources.

2007 General Plan Policies

The 2007 General Plan policies summarized below establish comprehensive measures to minimize adverse ground shaking impacts.

Safety Element

Safety Element Policies S-1.1, S-1.2, S-1.5, and S-1.8 (restrict siting of land uses in identified hazard areas and limit approval of development that does not consider geologic hazards) direct future growth away from areas of high seismic ground shaking for the purpose of avoiding or minimizing geologic hazards. Policies S-1.3 and S-1.7 (establish conditions/standards for geotechnical studies) would help to avoid ground shaking hazard exposure risks with future development through implementation of geotechnical study recommendations.

Area Plan Policies

There are no additional Area Plan policies related to ground shaking hazards.

Significance Determination

Implementation of the 2007 General Plan within the 2030 planning horizon could potentially result in adverse impacts related to ground shaking. The majority of new development proposed under the 2007 General Plan would not occur in areas of high probability for strong seismic ground shaking; rather, much of the proposed planning area development would be in areas of high probability for moderate ground shaking, mostly agricultural (wine-industry-related). Risks to agricultural development from ground shaking are minimal compared to risks to denser urban development. Nonetheless, primary mitigation for reducing risk would require new construction (including winery structures containing wine barrels) in Monterey County to comply with CBC Zone 4 seismic building criteria standards. These are designed to reduce ground shaking risks to acceptable levels by making new structures more resistant to seismic shaking damage, and they contain construction requirements that minimize the potential loss of life from an earthquake. Development in accordance with the 2007 General Plan and enforcement of the CBC would ensure that impacts related to potential ground shaking would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies as well as adherence to CBC standards would reduce impacts related to potential ground shaking to a less-than-significant level.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards such as seismic ground shaking.

2007 General Plan Policies

The 2007 General Plan policies summarized above identify high seismic risk areas and place restrictions on future development in those areas to minimize adverse seismic ground shaking impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to fault rupture. The 2007 General Plan would result in more persons and structures in areas of high probability for strong and moderate ground shaking. However, new construction throughout the County will comply with CBC Zone 4 seismic building criteria standards that are designed to reduce ground shaking risks to acceptable levels. Development in accordance with the 2007 General Plan and enforcement of the CBC would ensure that impacts related to potential ground shaking would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies as well as adherence to CBC standards would reduce impacts related to potential fault rupture to a less-than-significant level.

Liquefaction

Impact GEO-3: Land uses and development consistent with the 2007 General Plan could expose property and structures to the damaging effects of ground subsidence hazards. This kind of geologic hazard

can be seismically triggered (e.g., liquefaction), caused by seasonal saturation of the soils and rock materials, or related to grading activities. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan within the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures would be exposed to geological hazards such as liquefaction and ground subsidence. Liquefaction would be harmful because it could cause collapse or overturning of structures, collapse of pavements, and in some cases lateral spreading.

The 2007 General Plan would result in more persons and structures in areas of shallow groundwater in the Salinas River floodplain and near Elkhorn Slough, which have moderate to high susceptibility to liquefaction hazards. Thus, liquefaction could be of concern in the Community Plan Areas of Castroville, Chualar, and Pajaro; and in the Rural Centers of Bradley, Lockwood, Pine Canyon (King City), San Lucas, and San Ardo (refer to Exhibit 4.4.3).

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth comprehensive measures to minimize adverse liquefaction impacts.

Safety Element

Safety Element Policies S-1.1, S-1.2, S-1.5, S-1.6, and S-1.8 (restrict siting of land uses in identified hazard areas and limit approval of development that does not consider geologic hazards) direct future growth away from areas of high liquefaction risk for the purpose of avoiding or minimizing geologic hazards. Policies S-1.3 and S-1.7 (establish conditions/standards for geotechnical studies) would help to avoid liquefaction hazard exposure risks with future development through implementation of geotechnical study recommendations.

Area Plan Policies

There are no supplemental Area Plan policies that address liquefaction.

Significance Determination

Implementation of the 2007 General Plan within the 2030 planning horizon could potentially result in adverse impacts related to liquefaction. However, no new structures would be permitted without development of a site-specific geotechnical report and adherence to the recommendations outlined therein

for development on soils of potential liquefaction and subsidence. Specifically, Chapter 16.08 of the Monterey County Code requires that grading permit applications include soils engineering and engineering geology reports that provide "recommendations for grading procedures and design criteria for corrective measures when necessary, and opinions and recommendations covering adequacy of sites to be developed by the proposed grading" (Section 16.08.110). Standard geotechnical engineering procedures and soil testing, proper design, and quality control over construction can identify and mitigate liquefiable soils during site development. Modern soil engineering practices have improved substantially due to increased knowledge of soil types, their strengths, and groundwater conditions, as well as through the proper design and construction of fills and foundations. By using the best, most up-to-date standards, potential hazards related to subsidence and settlement damage—including liquefaction—can be reduced to levels that are generally considered acceptable. Thus, this requirement will identify problem soils and require mitigation when they are present. In addition, all new development would be built to CBC Zone 4 seismic building criteria standards, designed to reduce liquefaction risks to acceptable levels.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies, adherence to the CBC standards, and enforcement of the Monterey County Grading Ordinance would reduce impacts associated with liquefaction to a less-than-significant level.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards such as liquefaction.

2007 General Plan Policies

The 2007 General Plan policies summarized above identify high seismic risk areas and place restrictions on future development in those areas to minimize adverse liquefaction impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to liquefaction. The 2007 General Plan would result

in more persons and structures in areas of high and moderate probability for liquefaction. However, new construction throughout the County will comply with CBC Zone 4 seismic building criteria standards that are designed to reduce liquefaction risks to acceptable levels. Development in accordance with the 2007 General Plan and enforcement of the CBC would ensure that impacts related to potential liquefaction would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies as well as adherence to the Monterey County Grading Ordinance and CBC standards would reduce impacts related to potential liquefaction to a less-than-significant level.

Slope Instability and Landslides

Impact GEO-4: Land uses and development consistent with the 2007 General Plan could expose people and structures to substantial damaging effects of landslides, including the risk of loss, injury, or death from downslope earth movement that may be slow or rapidly occurring. This kind of geologic hazard is commonly caused by earthquakes, seasonal saturation of soils and rock, erosion, or grading activities. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan within the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures could be exposed to geological hazards such as downslope earth movement if new development was located on or near slopes. Landslides resulting in earth and debris flow could result in structural damage or complete loss of structures, as well as injuries or death to persons.

According to the 2007 General Plan, development would be predominantly located in areas of flat relief where there is little or no risk of slope instability. However, there is some proposed residential and agricultural development in and near hilly areas that could be susceptible to landslides, particularly in the Rural Centers of Bradley, Lockwood, Pleyto, and Pine Canyon (King City) (refer to Exhibit 4.4.4).

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized below set forth comprehensive measures to minimize slope instability and landslide impacts.

Safety Element

Safety Element Policies S-1.1, S-1.2, S-1.5, S-1.6, and S-1.8 (restrict siting of land uses in identified hazard areas and limit approval of development that does not consider geologic hazards) direct future growth away from areas of high landslide risk for the purpose of avoiding or minimizing geologic hazards. Policies S-1.3 and S-1.7 (establish conditions/standards for geotechnical studies) would help to avoid landslide hazard exposure risks with future development through implementation of geotechnical study recommendations.

Conservation and Open Space Element

Conservation and Open Space Element Policies OS-1.3 through OS-1.6 restrict ridgeline development. These policies would reduce the potential for slope instability resulting from construction and the risks to homes and persons that would otherwise be built on ridgelines.

Area Plan Policies

The following supplemental policies in the Area Plans address potential impacts from unstable slopes and landslides.

North County Area Plan

Policy NC-1.3 (encourage preservation of large acreages in higher elevations and on steeper slopes) would help to avoid landslide hazard exposure risks with future development by directing larger swaths of growth to occur at lower elevations and on flatter terrain.

Greater Salinas Area Plan

Policy GS-3.1 (promote preservation of land exceeding 25% slope) would help to avoid landslide hazard exposure risks with future development by directing growth away from areas with greater than 25% slope.

Greater Monterey Peninsula Area Plan

Policy GMP-4.1 (encourage preservation of redwood forest and chaparral habitat exceeding 25% slope) would help to avoid

landslide hazard exposure risks with future development by directing growth away from areas with greater than 25% slope.

Carmel Valley Master Plan

Policy CV-3.4 (promote sensitive siting and landscaping on hillsides and natural landforms altered by cutting, filling, grading, or vegetation removal) would help to avoid landslide hazard exposure risks with future development by directing careful growth on altered landforms and hillsides.

Toro Area Plan

Policy T-3.6 (encourage preservation of large acreages in higher elevations and on steeper slopes) would help to avoid landslide hazard exposure risks with future development by directing larger swaths of growth to occur at lower elevations and on flatter terrain.

Cachagua Area Plan

Policy CACH-3.2 (promote sensitive siting and landscaping on hillsides and natural landforms altered by cutting, filling, grading, or vegetation removal) would help to avoid landslide hazard exposure risks with future development by directing careful growth on altered landforms and hillsides.

Significance Determination

Implementation of the 2007 General Plan within the 2030 planning horizon could potentially result in adverse impacts related to landslides. However, no new structures would be permitted without development of a site-specific geotechnical report and adherence to the recommendations therein for development in areas susceptible to landslide. Specifically, Chapter 16.12 of the Monterey County Code (which comprises the County's Erosion Control Ordinance) prohibits construction activities that would lead to soil erosion or that would result in a permanent change to existing site on slopes greater than or equal to 25% (greater than 25% for development in the North County Land Use Plan) with exceptions being made only for special circumstances (Section 16.12.040). Section 21.66.010 of the Monterey County Code requires a conditional use permit for any development proposed on ridgelines. In addition, all new development would be built to CBC Zone 4 seismic building criteria standards, designed to reduce landslide risks to acceptable levels.

Mitigation Measures

No mitigation beyond the 2007 General Plan and Area Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies and respective Area Plan policies in addition to enforcement of the Monterey County Erosion Control Ordinance and the CBC would ensure that potential impacts related to slope instability and landslides would be less than significant.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards such as landslides.

2007 General Plan Policies

The 2007 General Plan policies summarized above identify landslide susceptibility areas and place restrictions on future development in those areas to minimize adverse downward earth movement impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to landslides. The 2007 General Plan would result in more persons and structures in areas susceptible to landslide. However, new construction throughout the County will comply with CBC Zone 4 seismic building criteria standards designed to reduce slope stability and landslide risks to acceptable levels. Development in accordance with the 2007 General Plan and enforcement of the CBC would ensure that impacts related to potential landsliding would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies as well as adherence to the Monterey County Grading Ordinance and CBC standards would reduce impacts related to potential landslides to a less-than-significant level.

Soil Erosion Hazards

Impact GEO-5: Erosion from activities and land uses consistent with the 2007 General Plan could result in erosion hazards. (Less-Than-Significant Impact with Mitigation.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan within the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures could be exposed to geological hazards such as erosion. Erosion results in the loss of topsoil that may reduce yield of crops or forage and cause sedimentation (siltation) problems downstream. Extreme cases of erosion can lead to landslides.

The 2007 General Plan would result in more persons and structures in areas of potential erosion hazard in the hilly and mountainous areas of Fort Ord/East Garrison and Pine Canyon (King City) Community Plan Areas and the Lockwood Rural Center (refer to Exhibit 4.4.5). In addition, agricultural development could occur on the uncultivated slopes in the Salinas Valley (particularly in portions of the Central/Arroyo Seco/River Road Segment and Jolon Road Segment Wine Corridors) that could put persons and winery structures in areas of potential erosion hazards.

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized below set forth comprehensive measures to minimize adverse erosion impacts.

Conservation and Open Space Element

Conservation and Open Space Element Policies OS-3.1, OS-3.2, and OS-3.5 (require Best Management Practices be implemented and encourage continuance of federal, state, and local erosion control programs) would help to control erosion with future development through compliance with best management practices and all levels of government regulation regarding erosion prevention practices. Policies OS-3.3 and OS-3.7 (establish criteria for erosion-related surveys and promote preparation of watershed plans for state-designated impaired waterways) would help to avoid erosion risks with future development through implementation of erosion-related survey and watershed plan recommendations. Policies OS-3.4 and OS-3.6 (map areas of steep slopes and establish criteria for residential development in such areas) direct future growth away from areas of steep slopes for the purpose of avoiding or minimizing erosion hazards. Policy OS-3.5 (sets forth requirements for a ministerial permitting system for existing lots of record) would help to avoid erosion hazards with future development through implementation of ministerial permit erosion control standards.

Agriculture Element

Agriculture Element Policy AG-5.1 (promote soil conservation programs) would help to avoid erosion hazard exposure risks with future development through implementation of soil conservation program measures that reduce soil erosion and increase soil productivity. Policy AG-5.4 (encourage policies and programs to protect and enhance surface water and groundwater resources) would help to avoid erosion hazard exposure risk with future development through compliance with policies and programs that limit sedimentation of surface and groundwater resources.

Safety Element

Safety Element Policies S-1.1, S-1.2, S-1.5, S-1.6, and S-1.8 (restrict siting of land uses in identified hazard areas and limit approval of development that does not consider geologic hazards) direct future growth away from areas of high erosion risk for the purpose of avoiding or minimizing geologic hazards. Policies S-1.3 and S-1.7 (establish conditions/standards for geotechnical studies) would help to avoid erosion hazard exposure risks with future development through implementation of geotechnical study recommendations. In addition, Policy S-1.9 (prepare erosion control plan measures to reduce moderate and high erosion hazards) would help to avoid erosion hazard exposure risks with future development through implementation of erosion control plan recommendations that would be put forth by a California-licensed civil engineer or a California-licensed landscape architect.

Area Plan Policies

The following supplemental policies in the Area Plans address potential erosion impacts.

North County Area Plan

Policy NC-1.3 (encourage preservation of large acreages in higher elevations and on steeper slopes) would help to avoid erosion hazard exposure risks with future development by directing larger swaths of growth to occur at lower elevations and on flatter terrain. Policy NC-5.3 (encourage conjoint soil, water, and resource protection programs) would help to avoid or minimize erosion with future development through participation in cooperative soil conservation, water quality protection, and resource restoration programs with neighboring jurisdictions.

Central Salinas Valley Area Plan

Central Salinas Area Plan Policy CSV-5.2 (prohibit new recreation and visitor-serving commercial uses that would produce runoff) would direct growth of runoff producing land uses away from areas that would result in erosion. Policy GS-3.1 (promote preservation of land exceeding 25% slope) would help to avoid erosion hazard exposure risks with future development by directing growth away from areas with greater than 25% slope.

Greater Monterey Peninsula Area Plan

Policy GMP-4.1 (encourage preservation of redwood forest and chaparral habitat exceeding 25% slope) would help to avoid erosion hazard exposure risks with future development by directing growth away from areas with greater than 25% slope.

Carmel Valley Master Plan

Policy CV-3.4 (promote sensitive siting and landscaping on hillsides and natural landforms altered by cutting, filling, grading, or vegetation removal) would help to avoid erosion hazard exposure risks with future development by directing careful growth on altered landforms and hillsides. Policies CV-3.8 and CV-3.9 (require retention of riparian vegetation and willow cover along the Carmel River) would help to avoid erosion along the Carmel River with future development through plantings along the river banks. Policy CV-4.1 also establishes specific standards to reduce erosion and runoff potential associated with future development.

Toro Area Plan

Policy T-3.6 (encourage preservation of large acreages in higher elevations and on steeper slopes) would help to avoid erosion hazard exposure risks with future development by directing larger swaths of growth to occur at lower elevations and on flatter terrain. Policy T-4.1 (prohibit practices that contribute to siltation and flooding of Toro Creek) would help to avoid erosion into and sedimentation of Toro Creek with future development.

Cachagua Area Plan

Policy CACH-3.2 (promote sensitive siting and landscaping on hillsides and natural landforms altered by cutting, filling, grading, or vegetation removal) would help to avoid erosion hazard exposure risks with future development by directing careful growth on altered landforms and hillsides.

South County Area Plan

Policy SC-5.2 (encourage conjoint soil, water, and resource protection programs) would help to avoid or minimize erosion with future development through participation in cooperative soil conservation, water quality protection, and resource restoration programs with neighboring jurisdictions.

Master Plan Policies

Fort Ord Master Plan

Fort Ord Master Plan Soils and Geology Policies A-2, A-3, and A-4 (prepare and monitor erosion control plans that meet requirements of a Stormwater Pollution Prevention Plan) would help to avoid or minimize erosion with future development through implementation and monitoring of Stormwater Pollution Prevention Plan erosion control requirements.

Significance Determination

Implementation of the 2007 General Plan within the 2030 planning horizon could potentially result in adverse impacts related to erosion. Accelerated erosion is a widespread impact that may be reduced but not entirely eliminated in areas of moderate to steep topography in Monterey County. Causes include vegetation removal, improper farming practices, grading for roadways and construction, and improper diversion and discharge of water. However, no new structures would be permitted on slopes greater than 25 to 30%, with limited, mitigated exceptions. Specifically, the County Erosion Control Ordinance (Chapter 16.12 of the County Code) prohibits development on slopes greater than 30%, requires implementation of an Erosion Control Plan, regulates the control of runoff, requires that creek disturbance be avoided, regulates land clearing, and prohibits grading activities during winter.

Implementation of the AWCP could induce property owners to change crop cover to vineyards or to plant vineyards on uncultivated slopes, thereby increasing the potential for soil erosion. The potential for soil erosion is particularly acute if property owners cultivate slopes so that rows are parallel to the slope gradient. However, an agricultural permit process would need to be established prior to allowing any conversion of slopes greater than 25% to agricultural lands.

The NPDES program governs water quality, including discharge of sediments into navigable water bodies. In Monterey County, the Central Coast RWQCB is charged with enforcing NPDES requirements, including runoff management programs that include

Best Management Practices to control erosion and sedimentation. Future development proposed in the 2007 General Plan would be required to apply and comply with Central Coast RWQCB NPDES erosion control permits. Phase I of the permit process would cover sites with construction disturbance greater than 1 acre, which includes most residential subdivisions and commercial developments. In addition, Phase II of the permit process would cover sites with construction disturbance less than 1 acre. Thus, 2007 General Plan implementation projects of all sizes would be covered by some phase of NPDES permit.

General Plan implementation activities would be subject to federal, state, and local erosion control programs, as well as the policies of the 2007 General Plan and Area Plans. In addition, by incorporating modern erosion control practices such as the use of biotechnical bank stabilization and geotextile fabrics to hold soil in place as well as various types of planting, soil erosion on most disturbed slopes can be greatly reduced. However, the development and implementation of erosion control measures on steep slopes and areas of highly erodible soils can be challenging and often are only partially successful, and high erosion hazards are widespread throughout the County. Therefore, the potential remains for significant erosion hazards to occur from development on individual lots of record and new hillside agricultural cultivation projects. The 2007 General Plan policies and the existing federal, state, and local erosion control requirements do not adequately mitigate this potentially significant impact to a less-than-significant level. Mitigation Measure BIO-2.1 (see Section 4.9, Biological Resources) would reduce the significance of this impact.

Mitigation Measures

BIO-2.1: Stream Setback Ordinance.

No additional mitigation beyond the General Plan and Area Plan goals and policies is necessary.

Significance Conclusion

Mitigation Measure BIO-2.1 would reduce this potentially significant impact to a less-than-significant level by restricting development near streams and thereby reducing the risk for construction and other activities related to development to cause bank failure or erosion. This measure also ensures that erosion from other activities will not directly flow into creeks and streams. Thus, with compliance with 2007 General Plan and respective Area Plans policies; adherence to federal, state, and local erosion control regulations (i.e., County Grading Ordinance and NPDES program); implementation of the 2007 General Plan would result in a less-than-significant impact related to erosion hazards.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards such as erosion.

2007 General Plan Policies

The 2007 General Plan policies summarized above identify erosion susceptibility areas and place restrictions on future development in those areas to minimize adverse erosion impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to erosion. The 2007 General Plan would result in more persons and structures in areas susceptible to erosion. General Plan implementation activities would be subject to federal, state, and local erosion control programs, as well as the policies of the 2007 General Plan and Area Plans. However the potential remains for significant erosion hazards to occur from development on individual lots of record and new hillside agricultural cultivation projects. The 2007 General Plan policies and the existing federal, state, and local erosion control requirements do not adequately mitigate this potentially significant impact to a less-than-significant level. Mitigation Measure BIO-2.1 (see Section 4.9, Biological Resources) would be in place to reduce the significance of this impact.

Mitigation Measures

BIO-2.1: Stream Setback Ordinance.

No additional mitigation beyond the General Plan and Area Plan goals and policies is necessary.

Significance Conclusion

Mitigation Measure BIO2.1 would reduce this potentially significant impact to a less-than-significant level. Thus, with compliance with 2007 General Plan and respective Area Plan and Area Plan policies; adherence to federal, state, and local erosion control regulations (i.e., County Grading Ordinance and NPDES program, buildout of the 2007 General Plan would result in a less-than significant impact related to erosion hazards.

Expansive Soils and Unstable Geologic Units

Impact GEO-6: Land uses and development consistent with the 2007 General Plan could expose property improvements to potential adverse effects from expansive soils. Expansive soils can damage improvements, especially structures such as residential buildings, small commercial buildings, and pavements. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan within the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures would be exposed to geological hazards such as the effects from expansive soils. Newly constructed buildings, pavements, and utilities could be damaged by differential settlement due to soil expansion and contraction. Movements may cause foundations to crack, various structural portions of the building to be distorted, and doors and windows to warp so that they do not function properly. Utilities also may be affected. These variations in ground settlement may ultimately lead to structural failure and damage to infrastructure.

Soil surveys provide general information about soils in an area. They are available from the Natural Resources Conservation Service, U.S. Department of Agriculture. However, maps provide only generalized locations. Only geotechnical tests can determine the existence of and corresponding swell potential of expansive soils at a site and, thus, the probability for structural damage.

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth comprehensive measures to minimize adverse expansive soil and unstable geologic unit impacts.

Safety Element

Safety Element Policies S-1.1, S-1.2, S-1.5, and S-1.8 (restrict siting of land uses in identified hazard areas and limit approval of development that does not consider geologic hazards) direct future growth away from areas of expansive soil risk for the purpose of avoiding or minimizing geologic hazards. Policies S-1.3 and S-1.7 (establish conditions/standards for geotechnical studies) would help to avoid unstable geologic unit and expansive soil hazard exposure

risks with future development through implementation of geotechnical study recommendations.

Area Plan Policies

No supplemental Area Plan policies address expansive soils or unstable geologic units.

Significance Determination

New development in accordance with the 2007 General Plan could result in construction activities overlying expansive or unstable soils. However, no new structures would be permitted without development of a site-specific soil sampling and laboratory soils testing report and adherence to the recommendations outlined therein, such as the proper subsoil preparation, drainage, and foundation design for constructing on more unstable soils. Procedures used in expansive soils testing are found in the 2001 CBC, adopted by Monterey County. According to the CBC, foundations for structures resting on soil with an expansion index greater than 20 require special design consideration. In addition, the Monterey County Grading Ordinance (Chapter 16.08 of the County Code) requires special treatment for grading sites with difficult soils. These limit the potential for development to occur without design features to mitigate the risk.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of 2007 General Plan policies as well as enforcement of the CBC would reduce potential expansive soil impacts. CBC requirements ensure that design and construction conform to recommendations from a geotechnical or soils investigation. This includes procedures for handling expansive soils through such techniques as replacement of expansive soils with non-expansive engineered fill, lime treatment, moisture conditioning, and other techniques. Consequently, potential expansive soil impacts would be less than significant.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards such as expansive soils.

2007 General Plan Policies

The 2007 General Plan policies summarized above identify high seismic risk areas and place restrictions on future development in those areas to minimize adverse expansive soil impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to expansive soils. The 2007 General Plan could result in more persons and structures in areas of expansive soils. However, new construction throughout the County will comply with CBC Zone 4 seismic building criteria standards designed to reduce expansive soil and unstable geologic unit risks to acceptable levels. Development in accordance with the 2007 General Plan and enforcement of the CBC would ensure that impacts related to potential expansive soils would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies as well as adherence to CBC standards would reduce impacts related to potential expansive soils to a less-than-significant level.

Septic Systems and Alternative Wastewater Systems

Impact GEO-7: Construction of septic tanks or alternative wastewater disposal systems on soils incapable of adequately supporting such systems could damage improvements and adversely affect groundwater resources. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan to the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures would be exposed to hazards related to construction of septic tanks on soils incapable or adequately supporting such systems. This may result in contaminated surface water or groundwater.

Septic tanks could be associated with development in the Salinas Valley, particularly within the Central/Arroyo Seco/River Road Segment, Metz Road

Segment, and Jolon Road Segment wine corridors and the River Road, Pine Canyon (Kings City), San Lucas, and San Ardo Rural Centers.

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized below set forth comprehensive measures to avoid and minimize adverse impacts associated with septic tank systems.

Public Services Element

Public Services Element Policies PS-4.1, PS-4.2, PS-4.3, and PS-4.5 (promote use of wastewater collection and treatment systems for new development) would help avoid the adverse impacts of impaired surface and groundwater quality that could potentially occur with installation of septic tank systems through determent of the use of septic and alternative wastewater systems. Policy PS-4.8 (require County to establish septic system and alternative wastewater system criteria) would direct future development to comply with septic tank criteria such as minimum lot size, location of wells, the capacity of the system, and other factors related to soil suitability in order to minimize risks to groundwater resources.

Area Plan Policies

The following supplemental Area Plan policies address impacts related to on-site septic systems.

Carmel Valley Master Plan

Carmel Valley Master Plan Policy CV-5.5 (require geologic and soils surveys if including on-site septic system) would help to ensure that future development with proposed septic systems would not contaminate the groundwater aquifer through implementation of geologic and soil survey recommendations. This policy would specifically require review for proper siting and design in accordance with the standards of the *Carmel Valley Wastewater Study*.

Central Salinas Area Plan

Central Salinas Area Plan Policy CSV-5.2 (require recreation and visitor-serving commercial use septic systems to meet RWQCB Basin Plan requirements) would help to minimize potential impairment of groundwater quality from septic systems through implementation of RWQCB Basin Plan measures related to septic systems.

Significance Determination

New development in accordance with the 2007 General Plan could result in installation of septic tank systems for wastewater disposal, especially in more rural areas of the County containing wine-related facilities. However, most General Plan development is not anticipated to be on septic, as population growth and respective new development is anticipated to occur primarily within the community planning areas rather than the rural or winery corridor areas. Nonetheless, no septic tanks would be permitted without development of a site-specific geotechnical report and adherence to the recommendations outlined therein related to installation of septic tanks systems. Finally, any alternative system management program must be consistent with RWQCB requirements, which would ensure that disposal does not degrade surface waters.

Mitigation Measures

No mitigation beyond the 2007 General Plan and Area Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan policies would promote the use of wastewater collection and treatment systems rather than septic tanks and would establish comprehensive standards for septic and alternative wastewater systems. Consequently, potential septic system impacts would be less than significant.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards associated with use of septic tanks.

2007 General Plan Policies

The 2007 General Plan policies summarized above place restrictions on future development in terms of installation of septic tank systems.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to septic tanks. However, new construction throughout the County would comply with 2007 General Plan and Area Plan policies that would ensure that impacts related to septic tanks would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan and Area Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan and Area Plan policies would reduce impacts related to septic tanks to a less-than-significant level.

Tsunami, Seiche, and Mudflow Hazards

Impact GEO-8: Land use activities and development consistent with the 2007 General Plan could expose persons and property to tsunami, seiche, or mudflow hazards. (Less-Than-Significant Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan within the 2030 planning horizon would result in new urban and agricultural development in undeveloped areas. As a result, more persons and structures would be exposed to hazards related to tsunami, seiche, or mudflow.

Development is not proposed for the immediate coastal areas or proximate to Lakes Nacimiento and Lake San Antonio (two large inland water bodies). Development is proposed for areas of the Bradley, Lockwood, Pleyto, and Pine Canyon (King City) rural areas.

2007 General Plan Policies

The 2007 General Plan contains policies that address development in areas prone to slope hazards such as landslides and mudflows. These policies are summarized in the discussion for Impact GEO-4.

Area Plan Policies

No Area Plan policies address the topics of tsunami, seiche, or mudflow hazards.

Significance Determination

The probability of seiche and mudflow are low in Monterey County. The areas with the greatest possibility of such hazards are not populated. Portions of the coast could be subject to inundation in the case of a tsunami. However, this risk has been identified in the certified Local Coastal Program, and protective policies have been put in place to minimize risk to new

development. Therefore, there would be no increase in tsunami or seiche hazards over existing levels.

Mudflows have occurred in recent geologic time in the coastal areas near Big Sur, which contain numerous steep slopes. Mudflows are extremely rare outside of that area, particularly in the inland portions of the County. Nonetheless, there is a remote possibility that mudflows could inundate inland areas where significant slopes are located. However, in terms of mudflow, no development would be permitted on slopes greater than 30% without mitigated exception. In addition, new development would be required to meet all applicable standards of the CBC, which includes standards related to slope stability. Therefore, adherence to 2007 General Plan policies and the CBC would ensure that no additional exposure to mudflow hazards would be created.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

With adherence to 2007 General Plan policies and compliance with the CBC, impacts related to tsunami, seiche, and mudflow hazards would be less than significant.

Buildout

Impact of Development with Policies

Buildout under the 2007 General Plan to 2092 would result in new urban and agricultural development in undeveloped areas beyond 2030 levels. New development could expose more persons and structures to geological hazards associated with tsunami, seiche, and mudflow.

2007 General Plan Policies

The 2007 General Plan policies summarized above set forth comprehensive measures to minimize adverse mudflow and landslide impacts.

Significance Determination

Buildout under the 2007 General Plan to 2092 could potentially result in adverse impacts related to tsunami, seiche, and mudflow. However, new construction throughout the County would comply with 2007 General Plan and Area Plan policies that would ensure that impacts related to tsunami, seiche, and mudflow would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan and Area Plan policies is necessary.

Significance Conclusion

Implementation of the 2007 General Plan and Area Plan policies would reduce impacts related to tsunami, seiche, and mudflow to a less-than-significant level.

4.4.5 Level of Significance after Mitigation

All impacts related to geology, soils, and seismicity would be less than significant with mitigation and compliance with federal, state, and local regulations.

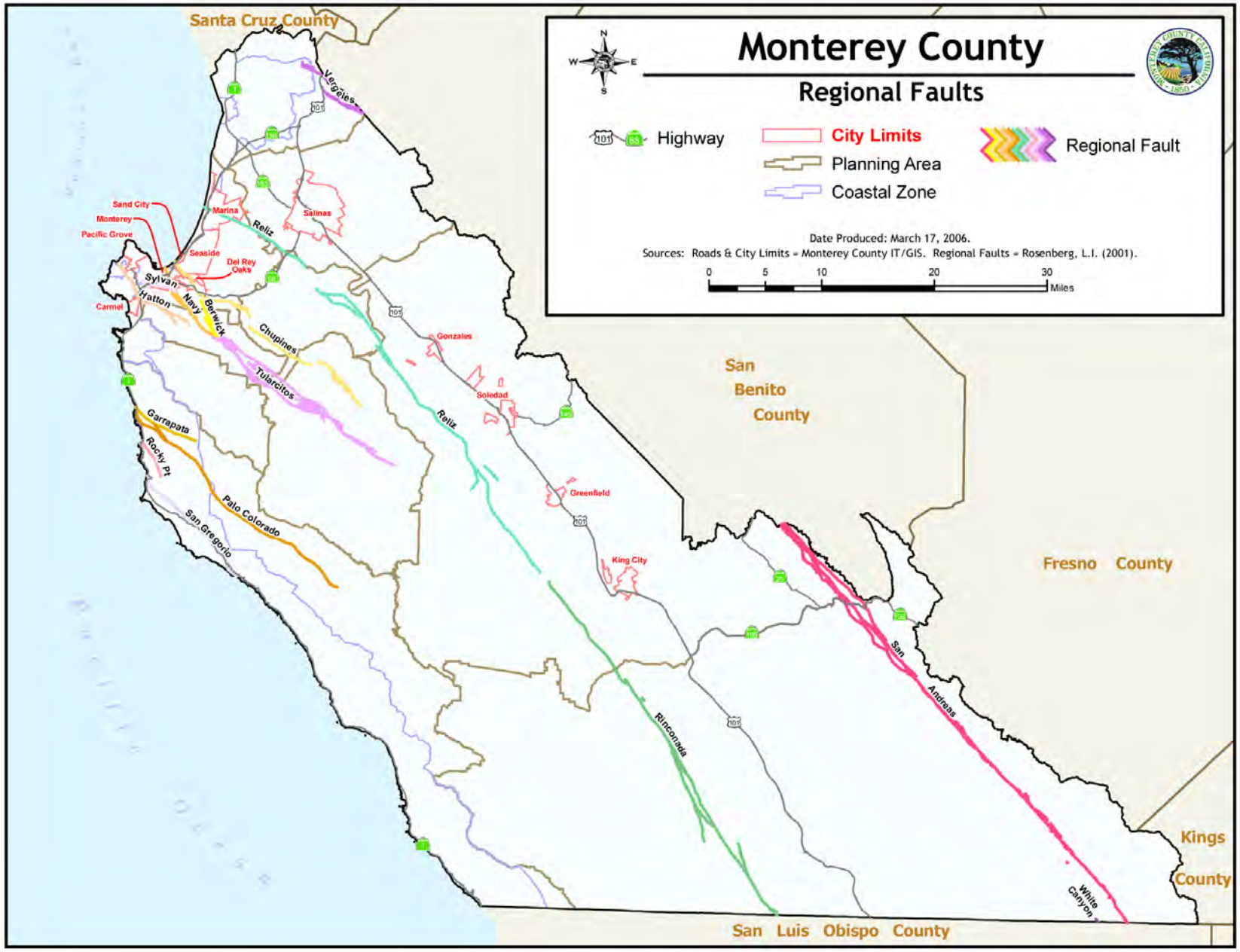


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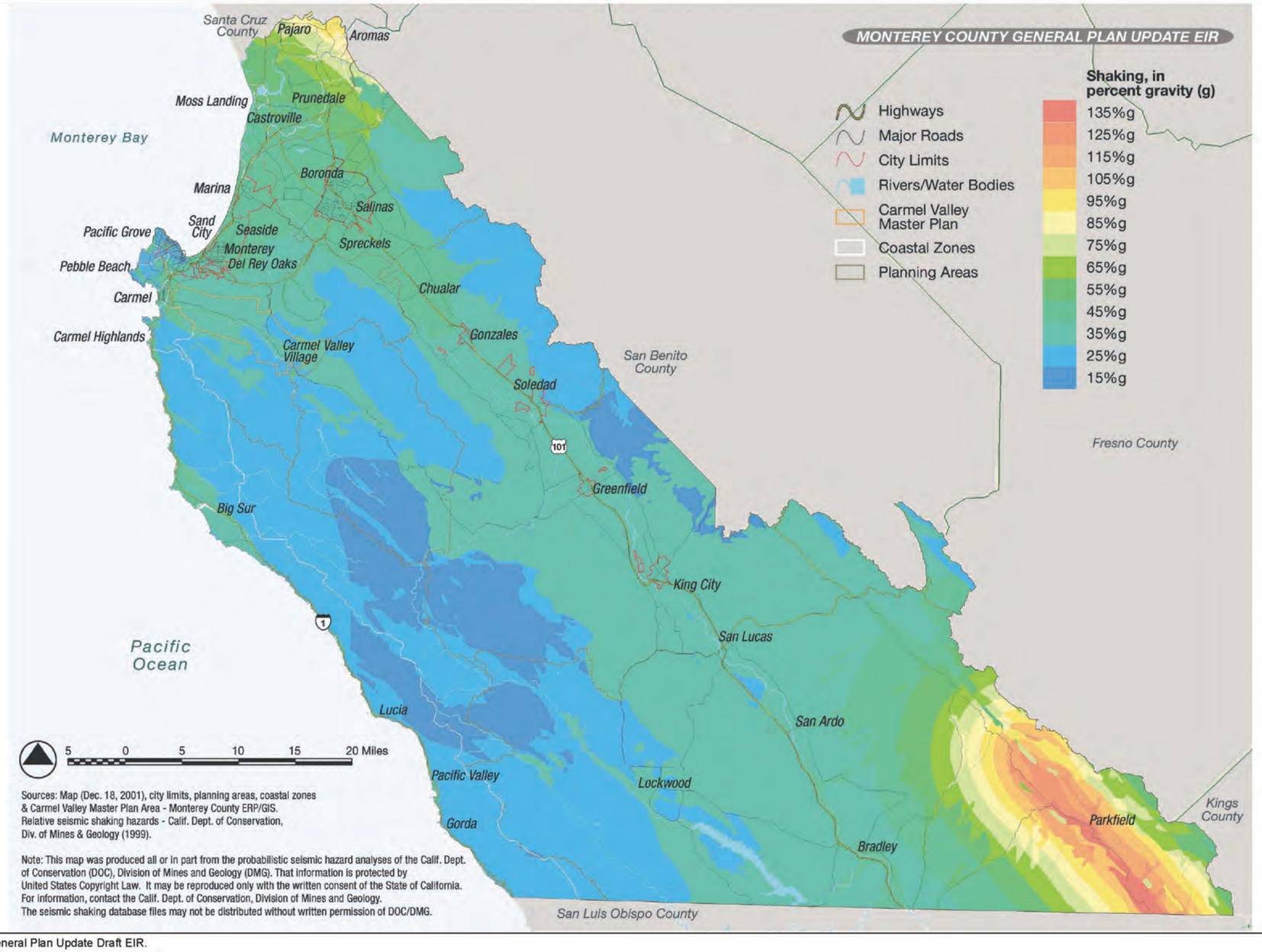
Exhibit 4.4.1
Regional Faults



Source: Monterey County 2004 General Plan Update Draft EIR.

NORTH

Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

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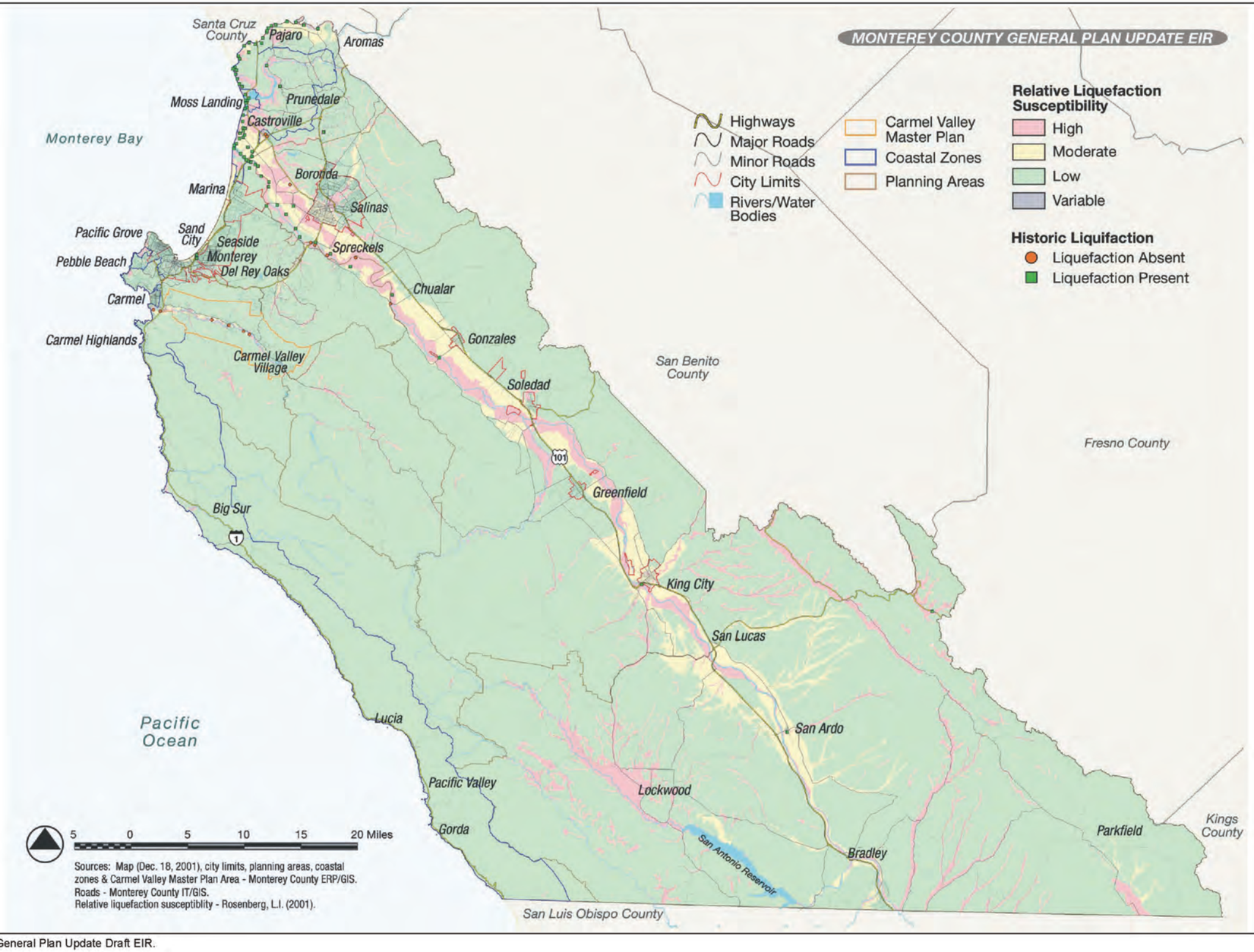
Exhibit 4.4.2
Ground Shaking Hazards



Source: Monterey County 2004 General Plan Update Draft EIR.

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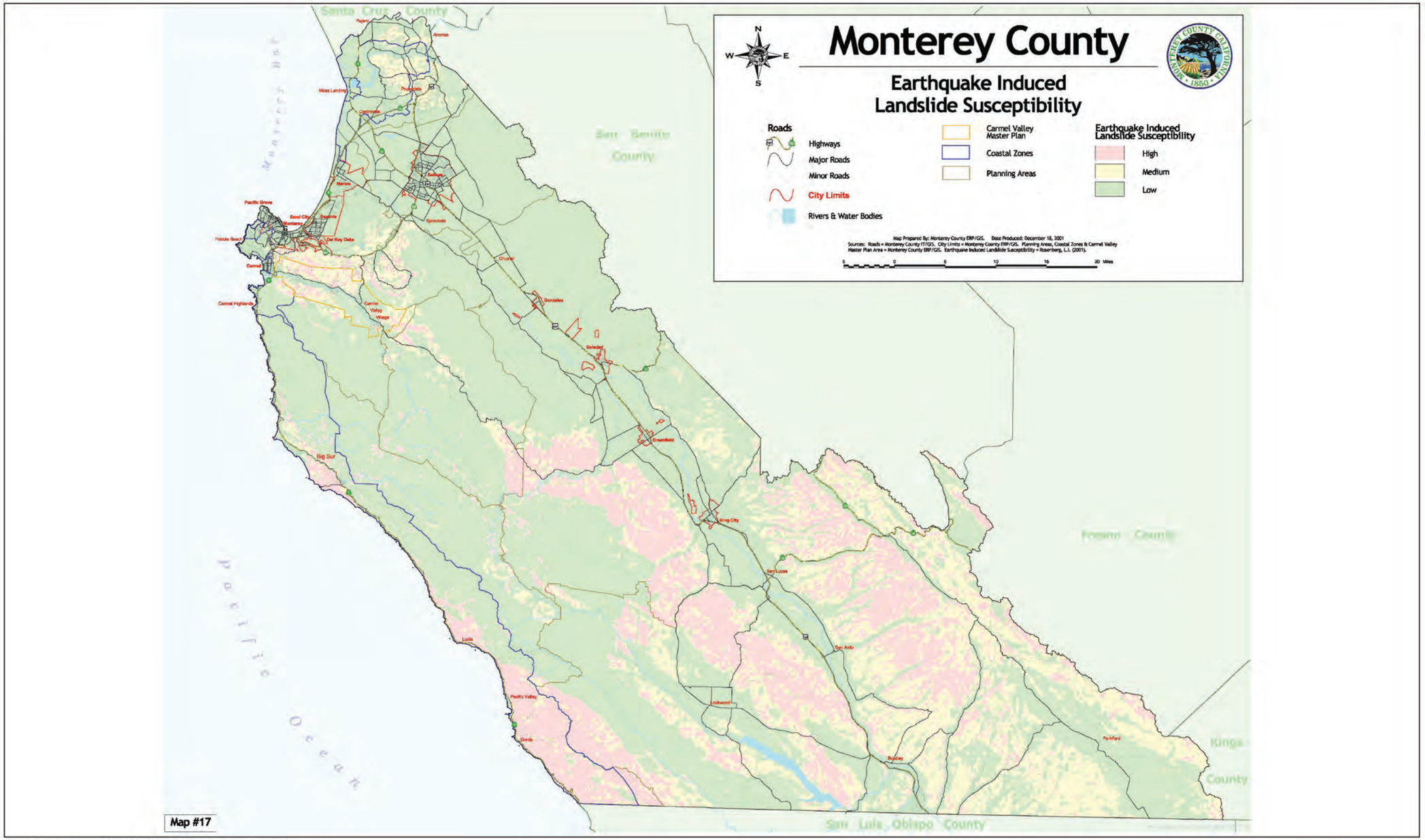
Exhibit 4.4.3
Relative Liquefaction Potential



Source: Monterey County 2004 General Plan Update Draft EIR.

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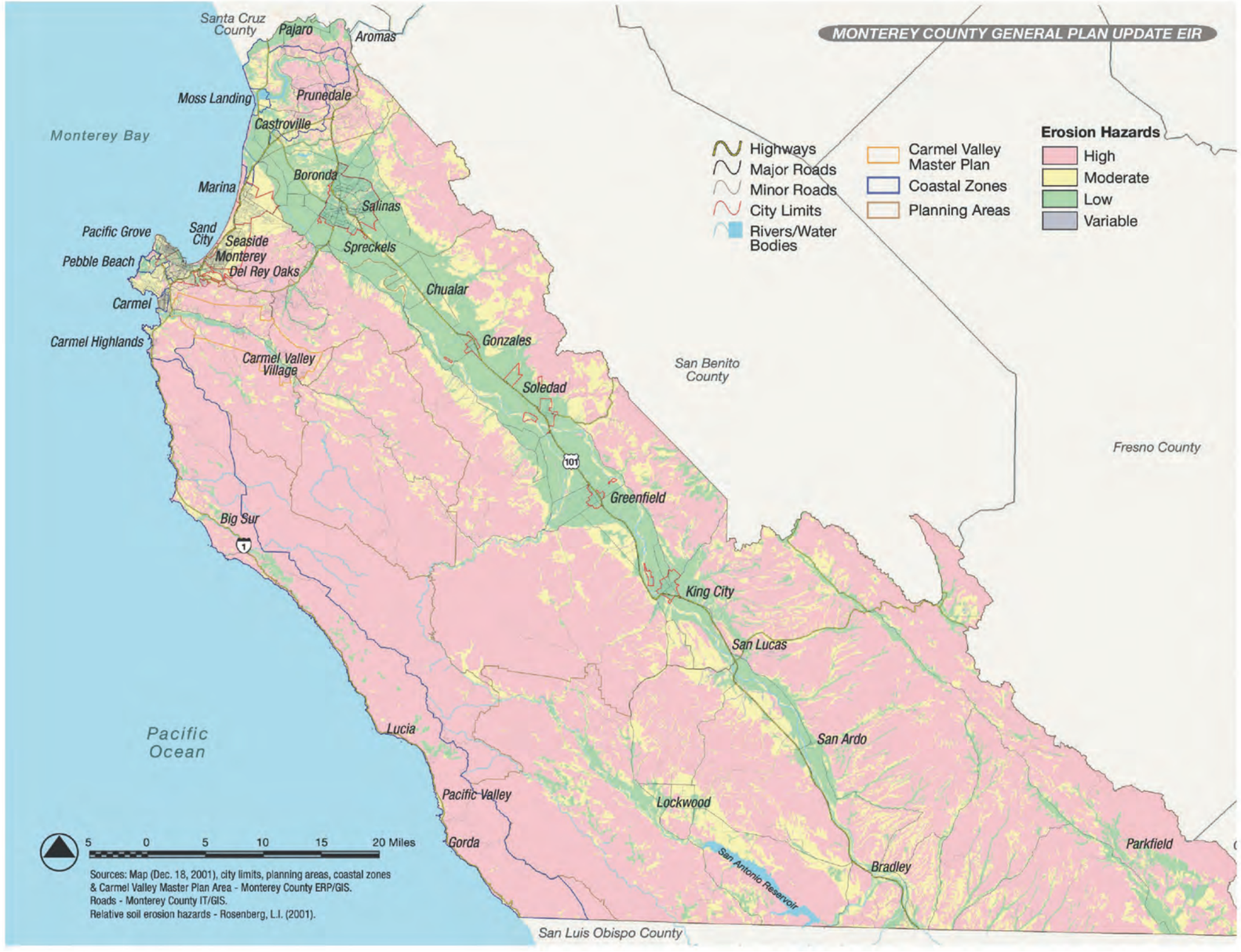
Exhibit 4.4.4
Earthquake Induced Landslide Susceptibility



Source: Monterey County 2004 General Plan Update Draft EIR.

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Exhibit 4.4.5
Soil Erosion Hazards

4.5 Mineral Resources

4.5.1 Abstract

The primary mineral commodities currently mined in Monterey County are sand, gravel, and petroleum. This section characterizes the mineral resources setting and regulatory framework applicable to mineral resources in Monterrey County.

The 2007 General Plan policies affect mineral resources in the County by defining methods for their long-term protection. The 2007 General Plan policies guide land use activities in order to avoid adverse impacts to identified mineral resources. This section also evaluates the potential loss of availability of known mineral resources due to land use conversions associated with the implementation of the 2007 General Plan.

All potential mineral resource impacts from development and land use activities by the 2007 General Plan would be less than significant and would not require mitigation.

4.5.2 Existing Setting

This section describes the existing setting related to mineral resource production in Monterey County.

Historic mineral production in Monterey County included sand and gravel mining for construction materials, mining for industrial materials (diatomite, clay, quartz, and dimension stone) and metallic minerals (chromite, placer gold, manganese, mercury, platinum, and silver).

The public depends on several categories of minerals found in Monterey County for a variety of everyday uses. For example, minerals such as sand and gravel are used to make concrete for buildings and asphalt to pave roads. Crude oil, natural gas, and coal are fuel minerals used for producing petroleum and petrochemicals.

The predominant non-metallic minerals found in the county include sand and gravel, limestone and dolomite, gemstones (mainly jade and jasper), asbestos, barite, clay, diatomite, feldspar, phosphate, sodium compounds, and stone.

Of the non-metallic minerals, construction-grade aggregate (sand, gravel, and crushed stone) is the most abundant and commonly used mineral resource in the county.

4.5.2.1 Non-Metallic Minerals

Sand and Gravel

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the classification of land into Mineral Resources Zones (MRZs) according to known or inferred mineral potential of that area. The classification process is based solely on the underlying geology without regard to existing land use or land ownership. The primary goal of the mineral land classification is to ensure that the mineral potential of the land is recognized by local government decision-makers and is considered before making land use decisions that could preclude mining.

Aggregate resources are classified by the State Geologist into four mineral resources zones based on the likelihood of the presence of mineral deposits and their economic value. This mineral land classification is used to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land use changes that would preclude future mineral extraction. The four divisions are "Areas of No Mineral Resource Significance (MRZ-1)," "Areas of Identified Mineral Resource Significance (MRZ-2)," "Areas of Undetermined Mineral Resource Significance (MRZ-3)," and "Areas of Unknown Mineral Resources Significance (MRZ-4). See the *Regulatory Setting* section of this section for more detailed information about the MRZ classifications.

Exhibit 4.5.1 displays the location of the MRZs in Monterey County, as well as the location of existing mines and oil wells. Nearly all of the areas classified as MRZ-1 are located in the urbanizing areas around Salinas, Castroville, and the Pajaro region. These are areas where, based on available geologic studies and information, no significant mineral resources were identified. The only area in Monterey County designated as MRZ-2, or as an area of identified mineral resource significance, is in the vicinity of Marina, Sand City and Seaside. Monterey and Pacific Grove are designated as MRZ-3, with undetermined mineral resource significance. Land near Del Rey Oaks is designated MRZ-4, or as an area of unknown mineral resource significance. At present, no aggregate resources have been classified beyond the more urbanized northern portions of the County. There are no areas designated by the State Geologist as MRZ in southern Monterey County. However, as shown in Table 4.5-1 and in Exhibit 4.5.1, there are multiple existing sand and gravel facilities located in southern Monterey County, including the Brinan Pit located in San Ardo and the Clark Pit located in King City. However, because these areas were not urbanizing as swiftly as the northern portion of the County, they were not evaluated by the State Geologist.

Table 4.5-1. Existing Aggregate Resources in Monterey County

Name	Operator	Location	Product
Arroyo Seco	Clark	Arroyo Seco	Sand, gravel
BLM Rock Pile	Clark	San Ardo	Stone
Brinan Pit	Swift Tectonics, Inc.	San Ardo	Sand, gravel
Chalone Creek	Swift Tectonics, Inc.	Soledad	Sand, gravel
Clark Pit	William J. Clark Trucking Service	King City	Sand, gravel
Del Monte Quarry	Granite Construction	Del Monte Forest	Sand, gravel
DKD Echo Valley DG Pit	DKD	Prunedale	Sand, gravel
Echenique Pit	Swift Tectonics	San Ardo	Sand, gravel
Jefferson Pit	Don Chapin Co., Inc.	Marina	Sand
Handley Mine	Granite Construction	Gonzales	Sand, gravel
Hidden Canyon	San Benito Supply Inc.	Greenfield	Crushed stone
Lapis	RMC Lonestar	Marina	Sand
Metz	Granite Construction Co.	Greenfield	Sand, gravel
Pine Canyon	Granite Construction	Salinas	Sand, gravel
Stonewall Canyon	Syar Industries	Soledad	Crushed stone

Source: California Department of Conservation, Office of Mine Reclamation 2008. *AB3098 Mine Reclamation List.*

The California Geologic Survey estimates that the Monterey Bay Production-Consumption Region, which includes Monterey, San Benito, Santa Cruz, and southern Santa Clara Counties, will require 379 million tons of aggregate through the year 2047. Currently, with only 269 million tons of permitted reserves, it is estimated that there is only enough aggregate to supply the region until 2033, resulting in an aggregate shortfall (California Geological Survey 1987).

In addition, the Department of Conservation forecasts a 30-percent shortfall of construction aggregates statewide over the next four decades (Hill 2006). The development of new and a gravel mines, along with aggregate recycling would likely be necessary to meet the projected aggregate shortfall in the Monterey Bay Production-Consumption Region.

Limestone and Dolomite

Limestone is an important mineral used in cement, agriculture, sugar refining, and glass manufacturing. Limestone, some of which is metamorphosed to marble, and dolomite are found mainly in the Gabilan Range and in the Santa

Lucia Range, most notably the Pico Blanco limestone deposit near Big Sur (California Division of Mines and Geology 1973). Except for the dolomite in the Natividad area near Salinas, there has been no commercial development of these deposits. The Natividad dolomite deposit in the Gabilan Range is an important source of raw material for extracting magnesium (Perozzo 2007).

Limestone is locally abundant in the Santa Lucia Range; however, most deposits have little economic value because of their remote location. The largest and most important are the extensive deposits at Pico Blanco near Big Sur. The Pico Blanco limestone deposits have a high purity and high calcium content, which make the limestone suitable for whiting and as an ingredient in paints, plastic fillers, and rubber. In response to a petition from the Granite Rock Company, the State Geologist evaluated the Pico Blanco deposits. The State Geologist classified areas owned by the Granite Rock Company as in the MRZ-2, indicating that significant mineral reserves are present (Exhibit 4.5.1). However, the lack of access to the Pico Blanco limestone deposits and concerns about the environmental impacts to the Big Sur area make mining of this limestone deposit difficult. In addition, in 1987, the California Coastal Commission denied the Granite Rock Company a use permit to mine in this area of the California coast.

4.5.2.2 Metallic Minerals

The major metallic minerals found in Monterey County include chromite, copper, gold, lead, manganese, mercury, molybdenum, silver, tungsten, and uranium. Of these minerals only chromite, gold, and mercury were produced in commercial quantities from the 1850s to the 1950s (Perozzo 2007).

Gold was widely prospected in Monterey County following the Gold Rush in the Sierra Nevada in the 1850s (Breschini 1983). Most of the gold occurs as vein deposits associated with Franciscan rock in the Los Burros Mining District near Cape San Martin on the Big Sur Coast. Minor amounts of gold were found in placer deposits in the Jolon area, the Carmel River, and the Cholame Valley. Despite the widespread prospecting, only a small amount of gold was recovered.

Chromite is used mainly as an alloy for steel and for plating metal. It was also stockpiled by the U.S. Government as part of the Strategic Mineral Program during World War II. Known deposits in Monterey County are associated with Franciscan Complex and serpentine in the Los Burros Mining District and in the Diablo Range (Perozzo 2007). The Los Burros deposits in Lilly Group and South Slope Mine were more productive than the Diablo Range deposit at Mee Ranch.

Mercury ore, more commonly known as quicksilver, was widely mined for its use in the amalgamation of gold and silver from their ores. The host rock for quicksilver deposits in Monterey County is cinnabar, found in silicacarbonate rock associated with the Franciscan Complex. Most of the mercury was produced in Parkfield, with a small amount near Dutra Creek (in the southwestern corner of Monterey County), and in Bryson.

4.5.2.3 Fuel Minerals

Oil

The Monterey Formation of California is part of a wide swath of unique sediments deposited around the Pacific Rim during the Miocene period, between about 17.5 and 6 million years ago (Behl 1998). The sediments in this formation are rich in organic matter, and its strata have been extensively investigated and mapped for petroleum exploration. This is a major oil-producing geological formation, and it provides the source rock for much of the oil and gas in California (Behl 1998).

Substantial oil reserves are believed to underlay parts of the Salinas Valley. The San Ardo Oil Field is the largest oil field in Monterey County. It is located in the lower Salinas Valley, about five miles south of the small town of San Ardo (Exhibit 4.5.1). The Energy Information Agency of the United States Department of Energy reports that the San Ardo oil field produced 3.2 million gallons of oil in 2006, which ranks the San Ardo Oil Field as forty-first in the nation in terms of oil production (U.S. Energy Information Administration 2006).

Other oil fields in the Salinas Valley include the Lynch Canyon, McCool Ranch, Monroe Swell, Quinado Canyon, and Paris Valley fields. Only San Ardo and King City have produced significant quantities of oil. Wildcat oil wells also were drilled at Fort Ord and Laguna Seca, in the Spreckels foothills, and in Seaside. None of these wells produced significant quantities of oil.

Coal

Historically, several coal deposits in Monterey County were commercially produced at the turn of the century. Two of these deposits were in the Diablo Range, in the southeastern part of the county. The first and most successful was the Stone Canyon mine. The Stone Canyon mine produced about 250,000 tons of coal from 1870 to 1935. A large amount of infrastructure, including a railway and tramway were built to bring the coal to market. The other Diablo Range coal deposit is near Priest Valley, located halfway between Coalinga and King City on Highway 198. Two mine shafts and 75 feet of drifts were excavated, but no production is recorded from this area. At this time, there is no known coal production underway in Monterey County, nor is coal production anticipated in the near future.

4.5.2.4 Abandoned Mines

As discussed above, existing mining operations in Monterey County are regulated by the State of California under SMARA. However, older mines that were abandoned prior to 1975 are not regulated by SMARA. Exhibit 4.5.2 depicts the locations of several recorded abandoned gold, mercury, and coal

mines of potential concern in Monterey County. As shown on Exhibit 4.5.2, the Plaskett Mines, Buclimo Mine and Old Murray Mine are located within the boundaries of the Los Padres National Forest and outside of the jurisdiction of the County. The Stone Canyon Mine, Partiquin Mine and Gillette Mines are located in a remote, mountainous area on the far eastern edge of the South County Area Plan.

Some of these mines may have been filled in, while others may still have open access. In addition to the public safety risk from entering improperly abandoned mines, some of the mines may be leaching acidic waters or heavy metals into local drainages. Proper closure of these mines is prudent and public funding may be available through State and Federal agencies to accomplish closure.

In California, abandoned mines are regulated by both the Federal government and State agencies. Federal agencies include the EPA and the U.S. Department of Labor, Mine and Safety Administration. State agencies include the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board (RWQCB), and the California Department of Conservation Office of Mine Reclamation (OMR). These agencies have authority in the mitigation and reclamation of these historic abandoned mines (Central Valley Regional Water Quality Control Board 2007).

Pollution and water quality impacts from abandoned mines in Monterey County are beyond the scope of required CEQA analysis for mineral resources and are not addressed further in this section.

4.5.3 Regulatory Framework

The management of mineral resources is subject to numerous laws and regulations. Summaries of state and local laws related to the management of mineral resources are presented in this section.

4.5.3.1 State

Surface Mining and Reclamation Act of 1975 (SMARA)

As discussed above under the *Existing Setting* section, SMARA (Public Resources Code Section 2710 et seq.) mandated the initiation by the State Geologist of mineral land classifications in order to identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA also allowed the State Mining and Geology Board (SMGB), after receiving classification information from the State Geologist, to designate lands containing mineral deposits or regional and statewide significance (California Geological Survey, 1999). Construction aggregate was

selected by the SMGD to be the initial commodity targeted for classification because of its importance to society, its unique economic characteristics, and the imminent threat that continuing urbanization poses to that resource. In 1980, SMARA was amended to also provide the classification of non-urban areas subject to land-use threats incompatible with mining. Currently, the State Geologist's SMARA classification activities are carried out under a single program for urban and non-urban areas of the state.

The provisions of SMARA are administered by Monterey County. In accordance with SMARA, permits are required for all mining industries commencing operation on or after January 1, 1976.

Classification of land within the State of California takes place according to a priority list that was established by the SMGB in 1982, or when the SMGB is petitioned to classify a specific area. The SMGB established MRZs to designate lands that contain mineral deposits. Lands designated MRZ-2 are to be protected, as feasible, from land uses that would eliminate their future availability. Throughout California, only construction-grade aggregate minerals are classified by the State Geologist. The classifications used by the State to define MRZs are as follows:

- MRZ-1: Applies to areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists of their presence.
- MRZ-2: Applies to areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists of their presence.
- MRZ-3: Applies to areas containing mineral deposits, the significance of which is undetermined and cannot be evaluated.
- MRZ-4: Applies to areas where available information is inadequate for assignment to any other zone (i.e., where there is not enough information available to determine the presence or absence of mineral deposits).

According to the Guidelines for the Classification and Designation of Mineral Lands, there are two general categories to exclude lands from an MRZ-2 designations, the first is an economic exclusion and the second a social exclusion (California Geological Survey 1999). Social exclusions include cemeteries, public parks and recreation areas, schools, hospitals, prisons and military bases and reservations. Economic exclusions include the following:

- Residential areas, and areas committed to residential development, such as approved tracts,
- Commercial areas with land improvements (buildings)
- Industrial areas (buildings and adjacent storage and parking facilities)
- Major public and private engineering projects, such as canals, freeways, bridges, airports, dams, and railroads.
- Small areas isolated by urbanization (generally less than 40 acres).

AB 3098 List

The Office of Mine Reclamation periodically publishes a list of mines regulated under SMARA that meet provisions set forth under California's Public Resources Code, Section 2717(b). This list is generally referred to as the AB 3098 List, in reference to the 1992 legislation that established it. Sections 10295.5 and 20676 of the Public Contract Code preclude mining operations that are not on the AB 3098 List from selling sand, gravel, aggregates or other mined materials to state or local agencies (California Department of Conservation 2008).

For the Office of Mine Reclamation to place a mining operation on the AB 3098 List, the operation must meet all of the following conditions:

- The operation has an approved reclamation plan;
- The operation has an approved financial assurance;
- The operation has filed its annual report;
- The operation has paid its reporting fee;
- The operation has had its annual inspection by the lead agency which reflects the operation is in full compliance with the law.

California Division of Oil, Gas and Geothermal Resources

The California Division of Oil, Gas and Geothermal Resources (DOGGR) is mandated by Section 3106 of the Public Resources Code (PRC) to supervise the drilling, operation, maintenance and abandonment of oil wells for the purpose of preventing damage to life, health, property, and natural resources. DOGGR is charged with implementing Section 3208.1 of the PRC. The Construction-Site Plan Review Program was developed to assist local permitting agencies in identifying and reviewing the status of oil or gas wells. Before issuing building or grading permits, local agencies review and implement the DOGGR's preconstruction well requirements. Interaction between local permitting agencies and the DOGGR helps resolve land use issues and allows responsible development in oil and gas fields.

4.5.3.2 Local

Monterey County Zoning Ordinance

Title 16, Section 16.04 of the Monterey County Zoning Ordinance, entitled "Surface Mining and Reclamation," specifies zoning regulations and policies for mineral resource extraction. Specifically, the Monterey County Zoning Ordinance addresses mineral resource extraction land use classifications and mine reclamation.

16.04.010 Purpose and intent

Section 16.04.140 (B) "Purpose and Intent" states that the "the extraction of minerals is essential to the continued economic well-being of the County and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety." In addition, "reclamation of mined lands will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land." The purpose and intent of the ordinance is to ensure the continued availability of important mineral resources, while regulating surface mining operations as required by California's Surface Mining and Reclamation Act of 1975 (Public Resources Code Sections 2710 et seq.), as amended, hereinafter referred to as "SMARA", Public Resources Code (PRC) Section 2207 (relating to annual reporting requirements), and State Mining and Geology Board regulations (hereinafter referred to as "State Regulations") for surface mining and reclamation practice (California Code of Regulations [CCR], Title 14, Division 2, Chapter 8, Subchapter 1, Sections 3500 et seq.), as those provisions may be amended, to ensure that:

- Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.
- The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.
- Residual hazards to the public health and safety are eliminated. (Ord. 4029, 1999; Ord. 2402 § 011, 1978)

16.04.140 Mineral resource protection

Specifically, Section 16.04.140 calls for mine development in areas compatible with mining operations, and designating such areas prior to encroachment from conflicting land uses. Mineral resource areas that have been classified by the State Department of Conservation's Division of Mines and Geology or designated by the State Mining and Geology Board, as well as existing surface mining operations, shall be protected from intrusion by incompatible land uses that may impede or preclude mineral extraction or processing.

In addition, Section 16.04.140 states that the County General Plan and resource maps shall be updated to reflect mineral information (classification and/or designation reports) within twelve (12) months of receipt from the State Mining and Geology Board of such information. Land use decisions within the County would be guided by information provided on the location of identified mineral resources of regional significance. Conservation and potential development of identified mineral resource areas will be considered and encouraged. Recordation on property titles of the presence of important mineral resource areas may be encouraged as a condition of approval of any development project in the impacted area. Prior to approving a use that would otherwise be incompatible with mineral resource protection, conditions of approval may be applied to encroaching development projects to minimize potential conflicts. (Ord. 4029, 1999)

4.5.4 Project Impacts

4.5.4.1 Thresholds of Significance

The impact assessment for Mineral Resources relies on the significance criteria in the CEQA Checklist presented in Appendix G of the CEQA guidelines. The 2007 General Plan would result in a significant impact on mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

The above thresholds of significance are closely related, and are therefore combined for the purposes of the following impact assessment.

In addition, as described under "*Abandoned Mines*," pollution and water quality impacts from abandoned mines in Monterey County are beyond the scope of required CEQA analysis for mineral resources and are not addressed further in this section.

4.5.4.2 Impact Analysis

Loss of Availability of Known Mineral Resources

Impact MIN-1: Implementation of the 2007 General Plan would potentially result in the loss of availability of known mineral resources of value to the region and the residents of the state. (Less-Than-Significant-Impact.)

Impact MIN-2: Implementation of the 2007 General Plan would potentially result in the loss of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (Less-Than-Significant-Impact.)

2030 Planning Horizon

Impact of Development with Policies

Implementation of the 2007 General Plan to the 2030 planning horizon would result in new urban development in some undeveloped areas of the County. Policies identified in the 2007 General Plan require the identification and conservation of areas with significant mineral resources, as well as the development of new mining activities where environmental

impacts and land use conflicts would be avoided. In addition, the 2007 General Plan emphasizes compact city-centered growth in and near existing urbanized areas. This land use concept is designed to preserve significant undeveloped areas and minimize encroachment into mineral resource extraction areas.

2007 General Plan Policies

The 2007 General Plan and Area Plan policies summarized below establish comprehensive measures to avoid the loss of known mineral resources of value to the region and the residents of the state.

Conservation and Open Space Element

Policies in the 2007 General Plan Conservation and Open Space Element address the conservation of mineral resources. Conservation and Open Space Element Policy OS-2.1 (Protection of mineral resources sites) states that potentially significant mineral deposits and existing mining operations identified through the State Division of Mines and Geology, including idle and reserve properties, shall be protected from on-site and off-site land uses that would be incompatible with mineral extraction activities.

Conservation and Open Space Element Policy OS-2.2 (SMARA requirements) requires mineral extraction operations to adhere to sound conservation practices consistent with SMARA and other applicable standards. Adequate financial security shall be required to insure reclamation of the extraction site to a condition consistent with the surrounding natural landscape and environmental setting.

Conservation and Open Space Element Policy OS-2.3 (Recycling) supports efforts to conserve raw mineral resources through recycling.

Conservation and Open Space Element Policy OS-2.4 (Mapping) incorporates the use of GIS mapping to maintain up-to-date records on the locations of valuable mineral deposits in the county.

Conservation and Open Space Element Policy OS-2.5 (Abandoned mines) requires the county to inventory, assess, and characterize the location and condition of identified pre-SMARA abandoned gold, mercury and coal mines and implement such measures as may be necessary to ensure that such mines do not contribute to a significant risk to public health or safety or non-compliance with water quality standards and criteria.

The 2007 General Plan Conservation and Open Space Element establishes goals and corresponding policies to provide for the conservation, utilization and development of the County's mineral resources (Monterey County 2007). The policies provide for the

protection of mineral resources by supporting the careful placement of land uses that would be compatible with protection of these mineral resources. In addition, the policies support the updating of mapping information for accurate identification of existing known mineral resources within the county. Therefore, implementation of the policies outlined in the Conservation and Open Space Element of the 2007 General Plan would avoid the loss of known mineral resources of value to the region and the residents of the state.

Area Plan Policies

North County Area Plan

The North County Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. However, as shown on Exhibit 4.5.1, portions of the North County Area Plan within the Pajaro Valley are designated MRZ-1 by the State Geologist. Lands designated MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists of their presence. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the North County Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

In addition, the North County General Plan Land Use Map (Exhibit 3.1a) depicts two existing sites designated as Mineral Extraction. These sites would remain under this designation with implementation of the 2007 General Plan. Therefore, there would be no loss of availability of a locally-important mineral resource site delineated on a local land use plan.

Greater Salinas Area Plan

The Greater Salinas Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. However, as shown on Exhibit 4.5.1, portions of the Greater Salinas Area Plan are designated MRZ-1 by the State Geologist. Lands designated MRZ-1 are areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists of their presence. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Greater Salinas Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

Central Salinas Valley Area Plan

The Central Salinas Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the Central Salinas Valley Area Plan that are designated or mapped by the State Geologist. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Central Salinas Valley Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

As shown on Exhibit 4.5.1, numerous oil wells are present within the Central Salinas Valley Area Plan on the westside of the valley in the between Greenfield and King City. The Central Salinas Valley Area Plan does not contain any specific land use compatibility policies related to oil field sites, or their protection. However, these oil wells are located in areas predominantly under agricultural production or grazing. Agriculture is generally compatible with oil and gas production, and continued agriculture production or grazing in these areas is not expected to impact oil production. Therefore, implementation of the Central Salinas Valley Area Plan is not expected to adversely affect the continued operation of these existing oil wells, or any future oil wells, due to the current and projected global demand for oil.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. However, as shown on Exhibit 4.5.1, portions of the Greater Monterey Peninsula Plan are designated MRZ-1, 2, 3 and 4 by the State Geologist. The areas designated MRZ-2 include the incorporated cities of Sand City, Seaside and Marina which are located outside of the County's jurisdiction. The MRZ-3 designation applies to lands containing mineral deposits, the significance of which is undetermined and cannot be evaluated. The areas designated MRZ-3 include the incorporated cities of Monterey, Pacific Grove and Carmel-By-The-Sea which are located outside of the County's jurisdiction. The MRZ-4 designation applies to areas where available information is inadequate for assignment to any other zone (i.e., where there is not enough information available to determine the presence or absence of mineral deposits). The areas designated MRZ-4 include areas on the outskirts of Monterey and Del Rey Oaks.

Implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Greater Monterey Peninsula Area Plan because the areas designated MRZ-2 (the lands containing known mineral deposits) are located in areas that are not under the County's jurisdiction. In addition, the State's Guidelines for Classification and Designation of Mineral Lands applicable to MRZ-2 zones identifies multiple exclusions to the MRZ-2 designation, including residential areas, commercial areas with land improvements, industrial areas, and major public and private engineering works (California Geological Survey 1999). Therefore, many of the urbanized and developed areas currently designated MRZ-2 are actually exempt.

Carmel Valley Master Plan

There are no lands within the Carmel Valley Master Plan that are designated or mapped by the State Geologist. However, Carmel Valley Master Plan Policy CV-1.19 (mines and quarries) encourages land use compatibility with mineral extraction activities by requiring visual screening, safe vehicular access, and noise reduction practices. In addition, policy CV-1.19 allows for development on slopes over 30% within the limits of the quarry.

Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Carmel Valley Master Plan because there are no known mineral resources of value designated by the State Geologist in this area. In addition, implementation of Carmel Valley Master Plan Policy CV-1.19 would ensure land use compatibility between proposed mineral resource extraction sites and existing land uses.

Toro Area Plan

The Toro Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the Toro Area Plan designated or mapped by the State Geologist. Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Toro Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

In addition, the Toro Area Plan Land Use Map (Exhibit 3.10) depicts one existing site designated as Mineral Extraction. This site would remain under this designation with implementation of the 2007 General Plan. Therefore, there would be no loss of availability of a locally-important mineral resource site delineated on a local land use plan.

Cachagua Area Plan

There are no lands within the Cachagua Area Plan designated or mapped by the State Geologist. However, Cachagua Area Plan Policy CACH-3.5 (mining/timber operations) requires that future mining or other resource production operations include visual screening and safe vehicular access. In addition, proposed new mining operations must consider impacts on roadways from truck traffic, noise impacts, drainage impacts and mitigate for impacts to watersheds, flora and fauna. Reclamation plans are also required per SMARA requirements and Zoning Ordinance requirements.

Implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Cachagua Area Plan because there are no known mineral resources of value designated by the State Geologist in this area. In addition, implementation of Cachagua Area Plan Policy CACH-3.5 would ensure land use compatibility between proposed mineral resource extraction sites and existing land uses.

South County Area Plan

The South County Area Plan does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the South County Area Plan are designated or mapped by the State Geologist.

Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the South County Area Plan because there are no known mineral resources of value designated by the State Geologist in this area.

The South County General Plan Land Use Map (Exhibit 3.12) depicts several existing sites designated as Mineral Extraction sites, including the San Ardo oil fields. These sites would remain under this designation with implementation of the 2007 General Plan. Therefore, there would be no loss of availability of a locally-important mineral resource site delineated on a local land use plan.

As shown on Exhibit 4.5.1, numerous oil wells are present within the South County Area Plan centered around the San Ardo Oil Fields. The South County Area Plan does not contain any specific land use compatibility policies related to oil field sites, or their protection. Therefore, implementation of the South County Area Plan is not expected to adversely affect the continued operation of these existing oil wells, or any future oil wells, due to the current and projected global demand for oil.

Agricultural Winery Corridor Plan

The AWCP does not contain any land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites. In addition, as shown on Exhibit 4.5.1, there are no lands within the South County Area Plan designated or mapped by the State Geologist.

Therefore, implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the AWCP because there are no known mineral resources of value designated by the State Geologist in this area.

As shown on Exhibit 4.5.1, numerous oil wells are present within the AWCP throughout the Jolon Road corridor, as well as the River Road/Arroyo Seco/Central Avenue corridor. The AWCP does not contain any specific land use compatibility policies related to oil field sites, or their protection. However, implementation of the AWCP is not expected to adversely affect the continued operation of these existing oil wells, or any future oil wells, due to the current and projected global demand for oil.

Community Area Policies

Fort Ord Master Plan—Conservation Element

As shown in Exhibit 4.5.1, a small area in the southwest portion of the Fort Ord Master Plan is designated MRZ-2 by the State Geologist. The MRZ-2 designation applies to areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists of their presence. Another small, adjacent area is designated MRZ-4, or as an area where available information is inadequate for assignment to any other zone.

In addition, there are many land use compatibility policies related to the development of mineral resource sites or the protection of mineral resource sites in the Fort Ord Master Plan Conservation Element. Objective B of the Conservation Element provides for mineral extraction and reclamation activities that are consistent with the surrounding natural landscape, proposed future land uses, and soil conservation practices.

Soils and Geology Policy B-1 (mineral resources classification) states the County shall identify areas of highly valuable mineral resources within the former Fort Ord area based on the State of California Division of Mines and Geology's mineral resources "classification-designation" system, and provide for the protection of these areas.

Soils and Geology Program B-1.1 (mineral resource designation) states that if the County determines that valuable mineral resources warranting protection are contained within the former Fort Ord, the County shall designate these areas in a mineral resource or similar land use category that would afford them protection. In addition, this area shall also be zoned in a district consistent with this designation.

Soils and Geology Program B-1.2 (property title) requires the County to record a notice identifying the presence of valuable mineral resources on property titles in the affected mineral resource protection areas.

Soils and Geology Policy B-2 (land use compatibility) states that the County shall protect designated mineral resource protection areas from incompatible land uses.

Soils and Geology Program B-2.1 (zoning compatibility) states that, if so provided, the County shall specify in its mineral resource protection-zoning district those uses that are deemed compatible with mining activities.

Soils and Geology Policy B-3 (reclamation plans) states that prior to granting permits for operation, the County shall require that mining and reclamation plans be prepared for all proposed mineral extraction operations.

Soils and Geology Program B-3.1 (reclamation requirements) states that the County shall develop and make available a list of issues to be considered and mitigated in mining and reclamation plans, including but not limited to, the following: buffering, dust control, protection of water quality, noise impacts, access, waste disposal, security and reclamation.

Soils and Geology Policy B-4 (reclamation bonds) states that the County shall require the posting of bonds for new mining permits if it determines that such a measure is needed to guarantee the timely and faithful performance of mining and reclamation plans.

Implementation of the 2007 General Plan would not result in the loss of availability of known mineral resources within the Fort Ord Master Plan because the areas designated MRZ-2 and MRZ-3 by the State Geologist would be protected under Soils and Geology Program B-1.1. In addition, the State's Guidelines for Classification and Designation of Mineral Lands applicable to MRZ-2 zones identifies multiple exclusions to the MRZ-2 designation, including residential areas, commercial areas with land improvements, industrial areas, and major public and private engineering works (California Geological Survey 1999). Therefore, any portion of the residential or commercial developed areas currently designated

MRZ-2 with the Fort Ord Master Plan area are actually exempt. In addition, implementation of Fort Ord Master Plan policies listed above would ensure land use compatibility between proposed mineral resource extraction sites and existing land uses.

Significance Determination

Implementation of the 2007 General Plan policies through the 2030 planning horizon would not result in the loss of availability of a known mineral resource of value to the region or the residents of the state. In addition, the 2007 General Plan and Area Plan policies address the need to protect access to mineral resources in the County. This would be achieved through compliance with applicable laws that govern surface mining and reclamation and by implementing policies to assist in the proper placement of mining and quarry activities. In addition, many of the lands designated MRZ-2 by the State Geologist are not under the land use jurisdiction of the County. Therefore, impacts in this regard would be less than significant.

Mitigation Measures

No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

The loss of availability of known mineral resources of value to the region or residents of the state from implementation of the 2007 General Plan would be less than significant, and no mitigation is required.

Buildout

Impact of Development with Policies

Buildout to 2092 under the 2007 General Plan would potentially result in adverse impacts to known mineral resources of value in the County. However, the 2007 General Plan and Area Plan policies set forth comprehensive measures to avoid and minimize adverse impacts related to the loss of mineral resources.

Implementation of the 2007 General Plan to the 2092 planning horizon would result in new urban development in some undeveloped areas of the County. The 2007 General Plan emphasizes compact city-centered growth in and near existing urbanized areas. This land use concept is designed to preserve significant undeveloped areas and minimize encroachment into mineral resource extraction areas. In addition, policies identified in the 2007 General Plan require the identification and conservation of areas with significant mineral resources, as well as the development of new mining activities where environmental impacts and land use conflicts would be avoided.

2007 General Plan Policies

Implementation of the 2007 General Plan policies listed above under the 2030 Planning Horizon would expressly avoid the loss of availability of known mineral resource areas in the County through the 2092 planning horizon.

Significance Determination

Implementation of the 2007 General Plan policies through the 2092 planning horizon would not result in the loss of availability of a known mineral resource of value to the region or the residents of the state. Implementation of the 2007 General Plan policies addresses the need to preserve and conserve access to mineral resources in the county. This would be achieved through compliance with applicable laws that govern surface mining and reclamation and by implementing policies to assist in the proper placement of mining and quarry activities. In addition, many of the lands designated MRZ-2 by the State Geologist are not under the land use jurisdiction of the County. Therefore, impacts in this regard would be less than significant.

Mitigation Measures

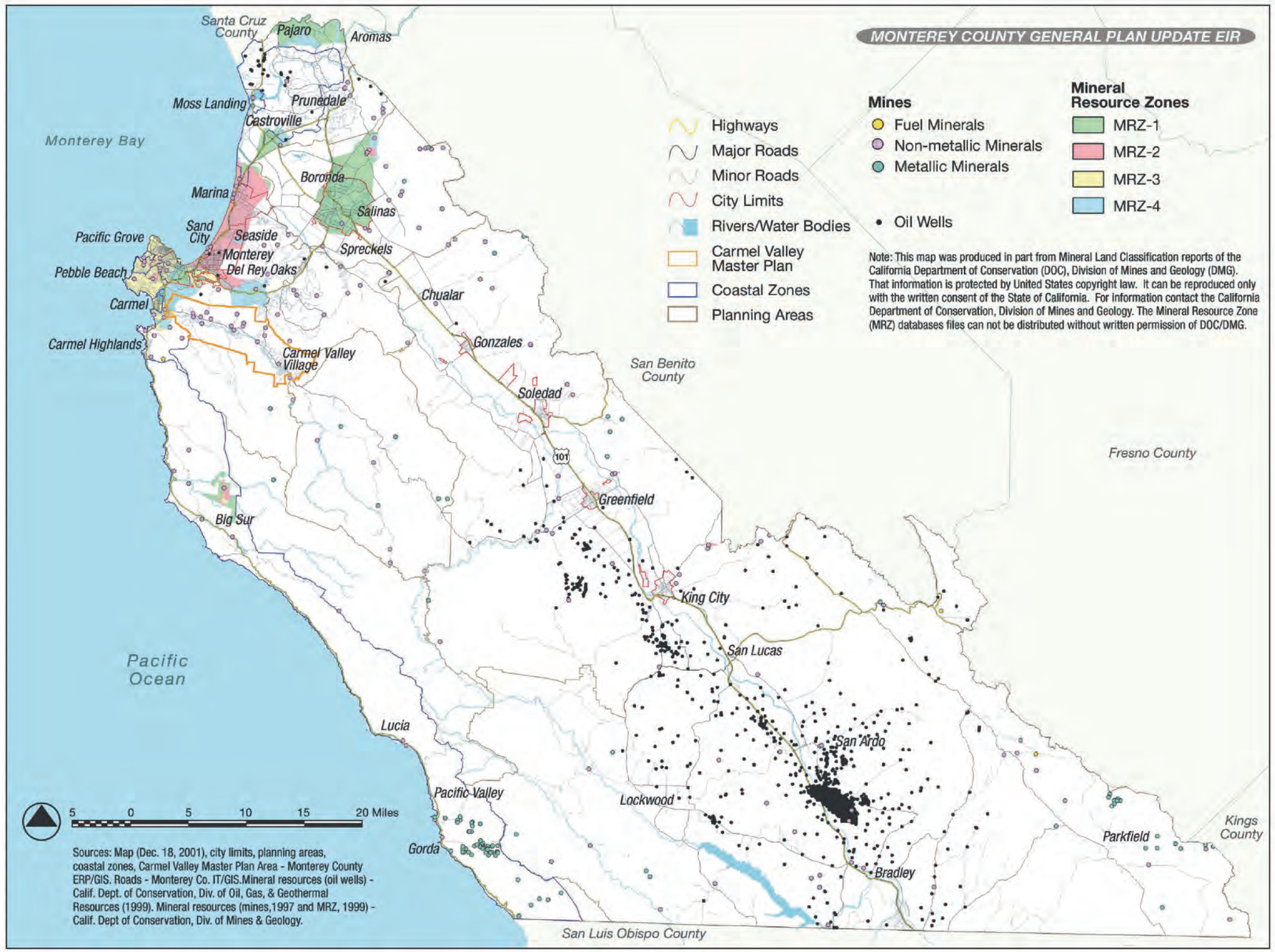
No mitigation beyond the 2007 General Plan policies is necessary.

Significance Conclusion

The loss of availability of known mineral resources of value to the region or residents of the state from implementation of the 2007 General Plan through the 2092 planning horizon would be less than significant, and no mitigation is required.

4.5.4.3 Level of Significance after Mitigation

All impacts to mineral resources would be less than significant with implementation the 2007 General Plan, and no additional mitigation would be required.



Source: Monterey County 2004 General Plan Update Draft EIR.

NORTH

Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

0098.2.07 (06-08)

ICF Jones & Stokes
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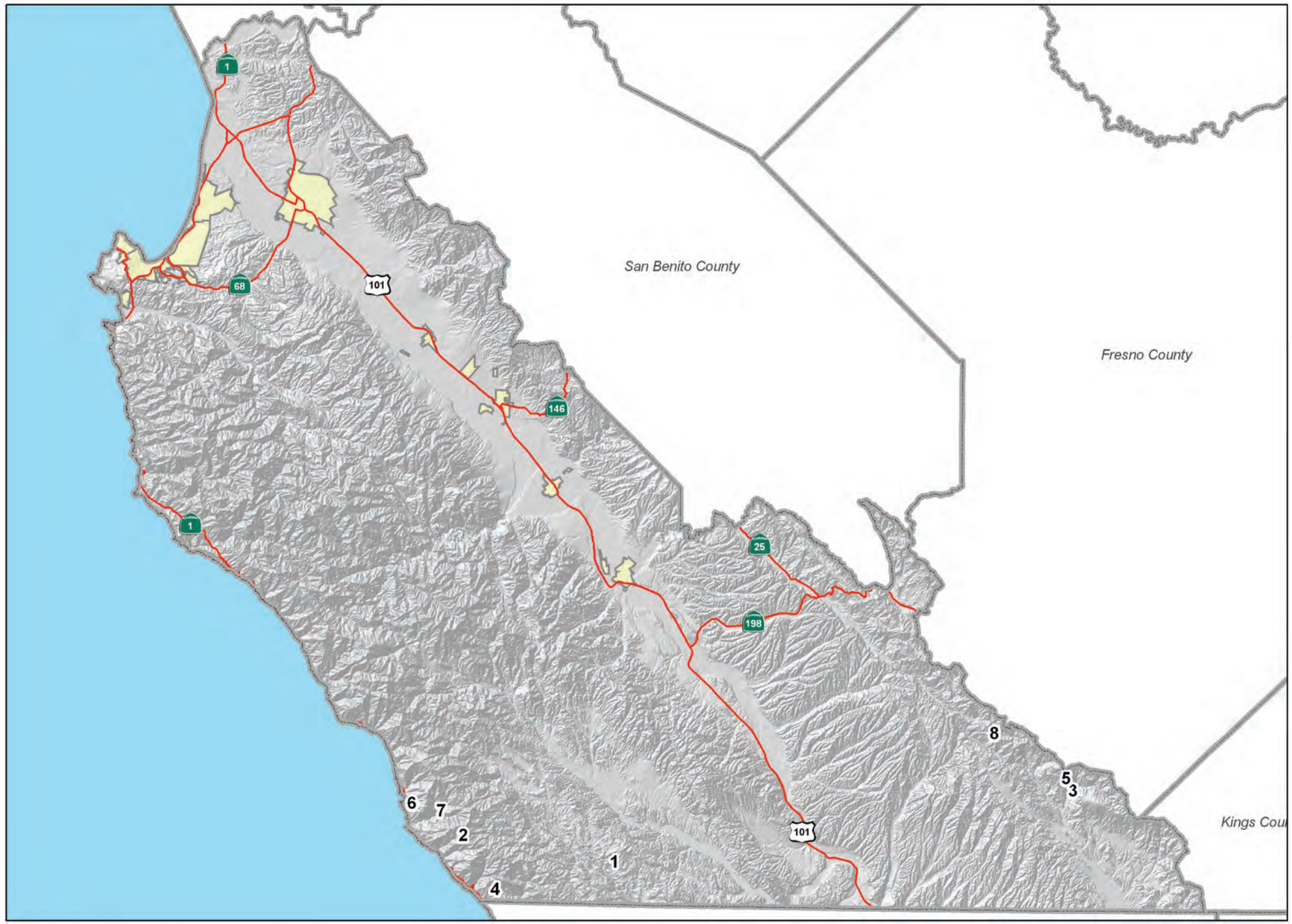
Exhibit 4.5.1
Mineral Resources



Legend

- County Boundaries
- Highways
- Incorporated Cities
- 1 Botts Mine
- 2 Buclimo Mine
- 3 Gilette Mine
- 4 Old Murray Mine
- 5 Patriquin Mine
- 6 Plaskett Mine
- 7 Plaskett Placer Mine
- 8 Stone Canyon Mine

Source: Monterey County and State Water Resource Control Board.

NORTH

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Michael Brandman Associates

MONTEREY COUNTY GENERAL PLAN EIR

00982.07 (06-08)

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Exhibit 4.5.2
Abandoned Mines

4.6 Transportation

4.6.1 Abstract

There are about 1,250 miles of County roads in the unincorporated portion of Monterey County, consisting mostly 2-lane and some 4-lane roads that range from Principal Arterials to Local Roads. Tourism is a source of traffic that contributes substantially to County roads, along with commuter traffic, agricultural product and freight movement, intra-regional travel, and inter-regional travel (through-traffic). The county's leading industry, production and shipping of agricultural products, generates high volumes of traffic throughout the county, another major source of circulation system demands. Movement of goods in Monterey County is one of the primary functions of the transportation system and an essential component of the County's economy. Monterey County is served by four public airports, Monterey Peninsula Airport, Salinas Municipal Airport, Marina Municipal Airport, and Mesa Del Rey Airport (King City).

The County of Monterey, the Transportation Agency of Monterey County (TAMC), the California Department of Transportation (Caltrans), and Monterey-Salinas Transit (MST) are the four agencies responsible for overseeing the transportation needs in Monterey County. These agencies have separate, but sometimes overlapping responsibilities, ranging from maintaining roadway facilities, long-range planning of new and expanded facilities, and providing public transportation. As of 2008, 90 regional and local roadway segments in the County fell below the Level of Service (LOS) standards established in the General Plan or Area Plans.

Implementation of the 2007 General Plan to the 2030 planning horizon and beyond to 2092 would result in significant impacts on transportation infrastructure at three (3) levels:

- **Project-specific Access and Level of Service Impacts on County and Local Roadways—**New vehicle trips generated by growth anticipated under the 2007 General Plan in 2030 and at buildout would result in deficient roadway performance on County roadways and local streets, requiring project-specific environmental assessment. Mitigation is proposed that would reduce the individual impacts of new development to a less than significant level. As described below, cumulative impacts would be significant and unavoidable nonetheless.
- **Cumulative Level of Service Impacts on County Roadways—**New trips generated by growth contemplated by the 2007 General Plan in 2030 and at buildout, along with new trips generated by planned growth in Cities, would cumulatively result in deficient roadway performance on County roadways. Mitigation is proposed that would minimize the impact; of individual projects, however, this impact would remain significant and unavoidable after mitigation.

- **Cumulative Level of Service Impacts on Regional Roadways—**New trips generated by growth contemplated by the 2007 General Plan in 2030 and at buildout, along with new trips generated by planned growth in cities, would cumulatively result in deficient roadway performance on regional roadways (i.e., state and federal highways and major streets within incorporated cities). This also includes regional roads external to Monterey County. Mitigation is proposed that would minimize the impact; however, this impact would remain significant and unavoidable after mitigation.
- **Level of Service Impacts on Roadway Segments within the Winery Corridor—**New trips generated by agricultural and winery growth contemplated by the 2007 General Plan in 2030 and at buildout would result in deficient roadway performance on four roadway segments. Mitigation is proposed that would minimize the impact; however, this impact would remain significant and unavoidable after mitigation.

All other impacts would be less than significant and do not require mitigation.

4.6.2 Existing Conditions

4.6.2.1 Introduction

Monterey County's transportation system has two primary functions:

1. Facilitate mobility and access, for residents, workers and visitors, to community services, the work place, commercial centers, recreation areas and the variety of land uses throughout the County, and
2. Facilitate the transport of goods to, from, and within the County.

The transportation system in Monterey County consists of several components:

- Regional Highways such as; U.S. Route 101 and the State Highways 1, 25, 68, 146, 156, 183, 198, 218;
- Major County Roads such as; Carmel Valley Road, San Miguel Canyon Road, Jolon Road, Blanco Road, Metz Road, River Road, Arroyo Seco Road;
- Arterial and Local Roads, such as; Corral de Tierra Road, Boronda Road, Strawberry Road, Castroville Boulevard, Espinosa Road;
- Regional transit; principally the Monterey-Salinas Transit service;
- Rail services, including; Amtrak (passenger service), future CalTrain (passenger service), and the Union Pacific Railroad (freight);
- Regional and local bike routes, such as; the Monterey Bay Recreational Trail;
- Regional and local pedestrian and hiking trails; mostly found in state and regional parks;

- Public airports, including; Monterey Peninsula Airport, Salinas Municipal Airport, Mesa Del Rey Airport (King City), Marina Municipal Airport;
- Public Harbors, such as Monterey Harbor and Moss Landing.

4.6.2.2 Road and Highway Transportation

There are about 1,250 miles of County roads in the unincorporated portion of Monterey County (**Exhibit 4.6.2**) consisting mostly 2-lane and some 4-lane roads that range from Principal Arterials to Local Roads. Most of these roads were developed to serve agricultural areas, rural communities, or remote wilderness areas in the more mountainous regions of the County. Over the past decades, these roads have shifted from accommodating primarily rural levels of traffic to accommodating urban levels of traffic and commuter traffic, contrary to their originally intended use and design capacities. Consequently, a number of roads function at a below established acceptable levels of service. The same is true of many segments along the nine (9) State Highways that cross the County.

4.6.2.3 Tourism Traffic

Tourism is a source of traffic that contributes substantially to county roads, along with commuter traffic, agricultural product and freight movement, intra-regional travel, and inter-regional travel (through-traffic). An estimated eight million tourists visit Monterey County each year (Source: Monterey County Herald, 4/26/07). Almost all of these tourists traveled by automobile. Of the County's 11,192 hotel and motel rooms, 9,320 are in the Greater Monterey Peninsula area (excluding Big Sur).

Tourism is the county's second largest industry, and the continued expansion of the tourism industry in Monterey County will further exacerbate this source of impact. Present alternatives to the automobile are not attractive to casual weekend travelers or to long-distance tourists. Although visitors comprise a high percentage of commercial airline passengers arriving at Monterey Peninsula Airport (62 percent, according to a 1996 AMBAG study), the relatively low number of airline trips in and out of the Peninsula accounts for only a very small percentage of the annual tourist volume. Monterey Salinas Transit's popular Waterfront Area Visitor Express (WAVE) service is an example of a non-impact transportation mode specifically tailored to tourist demand. However, the increasing demand for access to Monterey County's relatively inaccessible areas such as the Big Sur coastline, along with the over-capacity conditions already in place as a result of resident and commuter traffic, warrants additional measures to facilitate other modes of tourist-oriented transportation.

4.6.2.4 Agricultural Traffic

As the County's leading industry, the production and shipping of agricultural products generates high volumes of traffic throughout the County. This is another major source of circulation system demands. There are two components to this traffic source:

Trucks

A high percentage of local agricultural production is fresh fruits and vegetables, which require speedy transport either directly to wholesalers from the fields or from the field to the processing plant, then to market. Trucks are therefore ever-present on rural roads and moving in and out of towns and cities and contribute to over-capacity conditions. Because of their size and limited maneuverability compared to cars, trucks consume more capacity and demand greater access when entering roads from loading sites or other roads. Their greater weight (up to 40 tons) exerts significant wear and tear on roads, accelerating the need for road repair.

Workers

Agricultural fields are located from the upper limits of northern Monterey County through the Salinas Valley to the southern part of the County (approximately 150 miles). Work is seasonal and crops are regularly rotated creating a moving work place for the workers. As a result, workers in the fields commute from where housing is available, which is generally within the cities. Although buses may be offered for transportation and workers/families may carpool, it is common for there to be a number of individual cars parked in a field that is being harvested.

4.6.2.5 Freight Movement

Movement of goods in Monterey County is one of the primary functions of the transportation system and an essential component of the County's economy. Most goods, particularly agricultural goods and quarried materials, are transported by truck. The Regional Freight Study prepared by the Association of Monterey Bay Area Governments (AMBAG) in 1995 states that Monterey County was generating about 10,800 truck trips per day at that time. AMBAG's study also projected that the County would generate about 12,800 truck trips per day in 2006. The Regional Freight Study indicates that truck traffic accounted for about 11 percent of the total annual travel in Monterey County. Truck traffic is expected to increase as overall traffic volumes increase throughout the County and the State. The Regional Freight Study by AMBAG forecasts a two (2) percent annual increase in truck traffic in Monterey County through 2015.

The four highways that carry the highest level of truck traffic are Highways 1, 101, 156, and 183. AMBAG estimates that truck traffic is utilizing about 5 to 10 percent of the capacity of these highways. Table 4.6-1 shows the average daily truck volumes on these primary truck routes in Monterey County, as well as the less utilized Highway 198.

Table 4.6-1. Average Daily Truck Traffic on Monterey County Highways

Highway	Average Daily Truck Traffic
Highway 1	up to 3,800
U.S. 101	2,800–12,600
Highway 156	2,300–2,500
Highway 183	1,900–3,300
Highway 198	75–150

Source: 2006 Annual Average Daily Truck Volumes on the California State Highway System, Caltrans.

4.6.2.6 Monterey County Travel Patterns

According to the 2000 Census "journey to work" statistics, Monterey County's employed residents primarily commute to work using automobiles, with a substantial proportion driving alone (68 percent), as shown in Table 4.6-2. Carpooling is relatively high at nearly 20 percent of commuters. The third highest mode of travel is walking, at just over 5 percent. All other modes of travel, including public transportation for commuting, equal less than 5 percent.

Part of the reason for this pattern can be attributed to the manner in which the County has developed. All of the valley cities are surrounded by prime agricultural lands and the 1982 General Plan was designed to focus development towards cities in order to retain agriculture as well as to preserve scenic hillsides. As a result, people must commute from population centers to places where there are goods, services, and/or jobs.

Table 4.6-2. Existing Commute Travel Modes

Mode of Travel	Percent of Commuters
Total Car, Van, or Truck	86.1
Drove Alone	68.3
Carpooled	17.8
Public Transportation	3.0
Walk	5.1
Other	1.2
Work at Home	4.6

Source: United States Census Bureau, 2006 American Community Survey.

4.6.2.7 Road and Highway Capacities

The County's circulation system has a finite carrying capacity, and in some areas, the system's capacity has been exceeded. Traffic conditions for any given road segment can be expressed by a simple formula as the ratio of the volume of traffic using the road to the volume the road segment was designed to accommodate; also known as its volume-to-capacity ratio. Both figures are expressed in terms of Average Daily Traffic Volumes (ADT), that is, the total number of vehicles using the road on an average day. The number of vehicles using the road is either measured (by automated or manual traffic counters) or modeled with a computer-based traffic model. The design capacity is based on engineering standards established by the 2000 Highway Capacity Manual (2000 HCM) and adopted by the County, cities, and Caltrans.

The volume-to-capacity ratio is used as a quantitative measure of the roadway LOS. LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or at an intersection during a specific time interval, and is meant to reflect the degree to which traffic on the road is subject to congestion-related delays. The LOS categories and their pairing with specific ranges of volume-to-capacity ratio are a matter of convention, derived from standards developed by traffic engineers. LOS ranges from LOS A, which is very little delay to LOS F representing long delays and congestion. Table 4.6-3 defines each LOS category that has been adopted by the County as matter of policy and is used by the Public Works Department and Caltrans to identify substandard conditions. The County's current standard for road performance is LOS C under the 1982 General Plan and is proposed to be LOS D under the 2007 General Plan.

Table 4.6-3. Level of Service Definitions

Level of Service	Description
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream.
B	Stable traffic. Traffic flows smoothly with few delays.
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.

Source: Transportation Research Board, Highway Capacity Manual 2000, National Research Council, 2000.

When the volume of daily traffic on a roadway exceeds its design capacity, the road is said to be over-capacity. An over-capacity roadway can be restored to capacity by one of two methods:

- Reduction in traffic volumes—A reduction in volume is usually achieved by building another road to which traffic will be diverted. This is not actually a reduction, but a redistribution of traffic volumes. Reductions in traffic volume are rarely proposed as a means to address over-capacity roadway conditions.
- Increase in road capacity—An increase in road capacity is usually achieved through road widening. Over-capacity conditions are usually addressed by a proposed addition of new lanes or by construction of new roadways.

Road construction and expansion are most often selected and favored by policy in Monterey County. Although this is a common response that reflects conventional policies, it also reflects the inherent difficulty of implementing "demand management" measures to reduce volumes after traffic has already been generated. Demand management is most effective in preventing increased traffic volumes by precluding the need for trips through a combination of prudent land use planning and highly convenient transit services. Policies in the 2007 General Plan are designed to address this issue.

As in any system that has reached or is reaching capacity, competing interests have begun to vie for limited space on local and regional roads. Trucks crowd the downtown streets of Castroville and South Salinas. Tourist traffic jockeys with commuters on Highway 68 and 156. Long distance commuters in North County share country roads with locals driving to the market. Increasing numbers of all these road users result in impacts that run contrary to the historic rural character of Monterey County's unincorporated towns and heartland. Exhibit 4.6.2 depicts the LOS on the County roadway system. Table 4.6.-4 lists the County roadways that currently operated below acceptable levels of service at LOS E and LOS F. There are 14 segments operating at LOS E and 70 segments operating at LOS F.

Table 4.6-4. Roadways Exceeding Level of Service Standard (Year 2008)

Roadway	Segment
State Roadway Segments Operating at LOS E based on Daily Capacity	
U.S. 101	Crazy Horse Canyon Rd to San Miguel Canyon Rd
SR-1	Rio Road to Carmel Valley Road
County Roadway Segments Operating at LOS E based on Daily Capacity	
San Juan Rd (G-11)	Salinas Rd to San Miguel Canyon Rd
San Juan Rd (G-11)	Aromas Rd to Carpenteria Rd
Abbott St	U.S. 101 to Salinas City Line
Carpenter St	Carmel City Line to Serra Ave

Roadway	Segment
Davis Rd	Blanco Rd to Reservation Rd
Espinosa Rd	SR-183 to US-101
Harris Rd	Spreckels Blvd to Abbott St
Porter Dr	Salinas Rd to San Juan Rd
Salinas Rd	SR-1 to Fruitland Ave
Other Regional Roadway Segments Operating at LOS E based on Daily Capacity	
N Fremont St	Casa Verde Wy to SR-218
Sanborn Rd	U.S. 101 to Abbott St
State Roadway Segments Operating at LOS F based on Daily Capacity	
U.S. 101	The Monterey / San Benito County border to Crazy Horse Canyon Rd
U.S. 101	San Miguel Canyon Rd to John St (8 segments)
SR-1	Salinas Rd to SR-183 (4 segments)
SR-1	Fremont Blvd to Del Monte Ave (2 segments)
SR-1	N Fremont St to Aguajito Rd
SR-1	Holman Hwy to Carpenter St
SR-1	Ocean Ave to Carmel Valley Road
SR-68 (Holman Hwy)	Forest Ave to SR-1 (4 segments)
SR-68 (Monterey-Salinas Highway)	SR-1 to Portola Dr (6 segments)
SR-156	Castroville Blvd to US-101
SR-183	SR-156 to Cooper Rd (3 segments)
SR-218	Fremont Blvd to SR-68 (2 segments)
County Roadway Segments Operating at LOS F based on Daily Capacity	
Salinas Rd (G-12)	Porter Dr to Railroad Ave
Elkhorn Rd (G-12)	Salinas Rd to Hall Rd
Hall Rd (G-12)	Elkhorn Rd to San Miguel Canyon Rd
San Miguel Canyon Rd (G-12)	Hall Rd to US-101 (3 segments)
Blanco Rd	Reservation Rd to Davis Rd (3 segments)
Carpenter St	Serra Ave to SR-1
Ocean Ave	Carmel City Line to Sr-1
Porter Dr	San Juan Rd to Santa Cruz County Line
Rio Rd	Carmel City Line to SR-1
San Juan Grade Rd	Salinas City Line to Russell Rd

Roadway	Segment
Other Regional Roadway Segments Operating at LOS F based on Daily Capacity	
Foam St	Prescott Ave to Lighthouse Ave (2 segments)
Lighthouse Ave	David Ave to Washington St (4 segments)
Del Monte Ave	Washington St to SR-1 (3 segments)
Fremont St	Abrego St to Camino Aguajito
Munras Ave/Abrego St	Soledad Dr to Via Zaragoza
Del Monte Blvd	SR-1 to Broadway Ave (2 segments)
Del Monte Blvd	SR-1 to Reservation Rd (2 segments)
John St	Abbott St to U.S. 101
Davis Rd	W Laurel Dr to W Blanco Rd (2 segments)

Source: Kimley-Horn & Associates, Inc. 2008.

In addition, the Area Plan for Carmel Valley specifies an acceptable LOS of "C" or "D" for Carmel Valley Road depending on the roadway segment (see Impact TRAN-2B for identification of segments and associated LOS standards), as opposed to a LOS "C" that is proposed to be the acceptable level for other Carmel Valley roadways and LOS D in the remainder of the unincorporated County. Integration of this analysis into the 2007 General Plan EIR allows for consistency between documents.

The roadway level of service analysis for the Carmel Valley Master Plan (CVMP) area is based on peak hour (AM and PM peak) information. The reason that CVMP roadway facilities are analyzed in the peak hour as opposed to the daily analysis used for the rest of the County is because the CVMP policies establish LOS standards based on peak hour (CV 2.18-d), and a recent draft traffic analysis of the CVMP and the Carmel Valley Transportation Improvement Program was available (CVMP Traffic Study, July 2007). Integration of this analysis into the 2007 General Plan EIR allows for consistency between documents.

The CVMP analysis of roadway segments is based on industry standard methods for peak hour analysis (2000 Highway Capacity Manual, Transportation Research Board). Two performance measures are used in the CVMP analysis; two-lane roadways are analyzed based on the percentage of time vehicles must travel in groups behind slower vehicles due to inability to pass, while four-lane roadways are analyzed based on the density of vehicles, or how closely vehicles travel together making it difficult to change lanes or pass. These performance measures reflect actual roadway operations and require detailed information about roadway configurations and peak hour travel characteristics.

In comparison, the performance measure used for the rest of the County is the ratio of daily traffic volume to daily roadway capacity, a theoretical planning

measure that estimates whether a roadway will experience peak hour congestion by comparing demand to the number of lanes available.

Table 4.6-5 presents existing roadway levels of service and identifies segments that are currently operating at LOS D or worse within the Carmel Valley Area Plan areas and are therefore deficient.

Table 4.6-5. Carmel Valley Roadway Level of Service (Year 2008)

		Level of Service	
Roadway	Direction	AM Peak	PM Peak
Highway (SR) 1			
Between Ocean Ave & Carpenter St	NB	C	C
	SB	C	C
Carmel Valley Road			
East of Holman	BOTH	A	A
Holman Road to Esquiline Road	BOTH	A	A
Esquiline Road to Ford Road	BOTH	C	B
Ford Road to Laureles Grade	BOTH	C	C
Laureles Grade to Robinson Canyon Road	BOTH	D	C
Robinson Canyon Road to Schulte Road	BOTH	D	D
Schulte Road to Rancho San Carlos Road	BOTH	D	D
Rancho San Carlos Road to Rio Road	EB	A	A
	WB	A	A
Rio Road to Carmel Rancho Boulevard	EB	A	B
	WB	B	B
Carmel Rancho Boulevard to Highway 1	EB	B	A
	WB	A	B

Source: Kimley-Horn & Associates, Inc. 2008 and DKS Associates, 2007

In addition to Monterey County roadways described above, the analysis includes regional roadways external to the County that might be impacted by growth allowed under the General Plan in Santa Cruz, San Benito, and San Luis Obispo Counties. Table 4.6-6 present the existing levels of service for regional roadways external to the county. These external regional roadways were selected because they either represent the extents of the AMBAG model network for which future traffic volumes can be projected.

4.6.2.8 Public Transit Services

The Monterey Salinas Transit (MST) system is an inter-city and intra-city bus service. MST serves a 275 square-mile area of Northern Monterey County and Southern Santa Cruz County providing intercity bus service between Monterey and Salinas, Marina and Watsonville, Salinas and Watsonville, and south from Salinas as far as King City. Inter-city service is provided in Gonzales, Marina, Monterey, Pacific Grove, Salinas, and Seaside. MST offers 37 routes that serve an estimated 352,000 people residing within three-quarters of a mile from established routes. These MST lines connect with Santa Cruz Metropolitan Transit District routes originating at the Watsonville Transit Center.

MST's rural service is provided to Carmel Valley and seasonally to Big Sur. The Waterfront Area Visitor Express (WAVE) offers locals and tourists service to popular tourist destinations within the City of Monterey.

MST RIDES, Monterey County's paratransit program, provides transportation service for individuals who have a disability that prevents them from using MST's regular fixed route transit services. The MST RIDES program also provides the RIDES Special Transportation (RIDES ST) service for persons living outside of the ADA-required service corridor (up to ¾-mile from any MST fixed route bus line).

MST RIDES serves 14 municipalities in two counties and 10 additional communities in the unincorporated areas of Monterey County. Service coverage spans the Monterey Peninsula, Carmel, Carmel Valley, Salinas, Chualar, Gonzales, Greenfield, Soledad, King City, and the Watsonville Transit Center. As of February 2006, there are 2,145 people certified as ADA Paratransit eligible within the service area. About half of that population resides either in Salinas or Monterey, approximately 38 percent in Salinas, and 13 percent in Monterey.

Table 4.6-6. Regional Roadway Level of Service External to Monterey County (Year 2008)

		Existing Conditions	
Roadway Segment		V/C Ratio	Level of Service
Santa Clara County			
US Highway 101	Cochrane Rd to E Dunne Ave	1.139	F
US Highway 101	Masten Ave to Leavesley Rd/SR-152 West	0.989	E
US Highway 101	Monterey Rd to SR-25	1.071	F
SR-152	SR-156 to Merced County	0.630	C

Roadway Segment		Existing Conditions	
		V/C Ratio	Level of Service
SR-1	Soquel Ave to 41st St	1.368	F
SR-1	Airport Blvd to SR-152	0.876	D
SR-1	Harkings Slough Rd to SR-129	0.608	C
SR-1	SR-129 to Monterey County	0.492	B
SR-17	Santa Clara County to Granite Creek Rd	0.958	E
SR-129 (Riverside Rd)	Lakeview Rd to Carlton Rd	0.847	D
San Benito County			
US Highway 101	Santa Clara County to SR-129	0.912	E
SR-25 (Bolsa Rd)	Santa Clara County to SR-156	1.196	F
SR-156	Salinas Rd to Union Rd	1.706	F
San Luis Obispo County			
US Highway 101	Monterey County to San Miguel Ave	0.300	A

Source: Kimley-Horn and Associates, Inc.

The MST RIDES ST service area includes the unincorporated areas of Prunedale, Castroville, and Aromas for North Monterey County as well as the area along River Road from State Highway 68 to, and including, Las Palmas Ranch II. The MST RIDES ST service area extends one mile on either side of Highway 101 from Salinas to Bradley including the unincorporated communities of San Lucas and San Ardo for South Monterey County. MST RIDES ST services are provided when MST RIDES and MST's regular bus services are in operation. Table 4.6-7 lists each MST bus route. Exhibit 4.6.3 shows MST bus routes in Monterey County.

Table 4.6-7. Monterey Salinas Transit Bus Routes

Route No.	Route Area	Route No.	Route Area
1	Pacific Grove	29	Watsonville-Salinas
1x	Asilomar-Lovers Point Express	36	Laguna Seca-Carmel
2	Monterey-Pacific Grove	37	Laguna Seca-Seaside
2x	Pebble Beach Express	38	Laguna Seca-Monterey
4	Carmel-Carmel Rancho	39	Laguna Seca-Salinas
5	Monterey-Carmel	41	East Alisal-Northridge
6	Edgewater-Ryan Ranch	42	East Alisal-Westridge
7	Monterey-Carmel	43	Memorial Hospital
9	Fremont-Hilby	44	Northridge
10	Fremont-Ord Grove	45	East Market-Creekbridge
11	Edgewater-Carmel Express	46	Natividad
16	Monterey-Marina	48	Salinas-Airport Business Center
20	Monterey-Salinas	49	Northridge
21	Monterey-Salinas	55	Monterey-San Jose Express
22	Big Sur	56	Monterey-Memorial Hospital
23	Salinas-King City	No-route number - service available on demand	Monterey-Peninsula DART
23x	Salinas-King City Express		MST On Call Marina
24	Carmel Valley Grapevine Express		MST Trolley-Monterey
27	Watsonville-Marina		MST RIDES
28	Watsonville-Salinas		

Source: Monterey Salinas Transit. 2008.

4.6.2.9 Transportation

Civilian Aviation Facilities

Monterey County is served by four public airports, Monterey Peninsula Airport, Salinas Municipal Airport, Marina Municipal Airport, and Mesa Del Rey Airport (King City). The Monterey Peninsula Airport is owned and operated by the Monterey Peninsula Airport District. The Salinas Municipal, Marina Municipal (formerly Fritzsche Army Airfield), and Mesa Del Rey (King City) Airports are owned and operated by their respective cities. Additional information on the four public airports is included in Table 4.6-8. Monterey County also contains over thirty private airstrips and agricultural landing fields.

Table 4.6-8. Monterey County Airports

Airport	Runways	General Aviation Aircraft Based at the Airport	Average Aircraft Operations
Monterey Peninsula Airport	2	165	250 per day with 60 scheduled commercial passenger flights
Salinas Municipal Airport	3	229	213 per day
Marina Municipal Airport	1	69	110 per day
Mesa Del Rey Airport	1	31	67 per week

Source: http://www.airnav.com/ 2008.

The Monterey Peninsula Airport District includes portions of Monterey, Pacific Grove, Del Monte Forest, Pebble Beach, Carmel-by-the-Sea, greater Carmel, Del Rey Oaks, Seaside, Sand City, the Monterey-Salinas Highway to Laureles Grade, and the west end of Carmel Valley. The Airport District is not incorporated into the City or the County, nor is it a public utility. According to the Monterey Peninsula Airport District, passenger and airport operations have been declining since it peak in 1978 (from 640,000 passengers annually to 340,000 in 2004).

A small airstrip had been located in the Carmel Valley Village area under the 1982 General Plan. This airstrip is no longer in operation and the property is under private ownership. A prior action by the Monterey County Board of Supervisors changed the land use designation so that this property is now consistent with the surrounding neighborhood. As such, the former airstrip property is designated for low-density residential uses under the 2007 General Plan.

Military Aviation Facilities

Military aviation facilities are located within the boundaries of Fort Hunter Liggett and Camp Roberts to the south.

The Schoonver Tactical Air Strip at Fort Hunter Liggett is a 5,000-foot compacted dirt and rock surface runway capable of supporting C-130 Hercules and C-12 Huron operations. In addition, Fort Hunter Liggett also contains the Doolittle Aircraft Training Area, which is used for Close Air Support training by Navy aircraft from Naval Air Station Lemoore in Kings County.

McMillan Airfield at Camp Roberts is a 3,500-foot long runway with a paved surface capable of supporting C-130 operations. McMillan Airfield is currently used for Unmanned Aerial Vehicle operations and testing.

4.6.2.10 Rail Transportation

Rail transportation historically played a key role in developing and supporting the land uses and major industries in Monterey County. Several of the cities and communities of the Salinas Valley (e.g., King City, Gonzales, Chualar, Soledad, San Ardo, San Lucas, and Bradley) owe their existence and early vitality to the development and economic benefits associated with the construction of the Southern Pacific Railroad through the County in the late 1800s. The agricultural industry of the valley flourished in partnership with the transport of produce by rail to the national market. The tourism industry, which has been the basis of Monterey Peninsula's economy for more than a century, was spurred originally by construction of Southern Pacific's new line in 1879 from Castroville to Monterey, with a special stop at Southern Pacific's own Del Monte Hotel.

Since the 1950s, the primary mode of travel for county residents and visitors alike has been the single-passenger automobile. The heavy flow of agricultural freight that once traveled by railway is now transported by trucks using local streets and the county's arterial roads and highways. The San Francisco to Monterey passenger rail service (the "Del Monte" trains) was discontinued in 1971 following a long period of declining ridership and downgrades in service.

Currently, the Union Pacific Railroad (which acquired the Southern Pacific in 1996) owns and operates most of the rail trackage in Monterey County. The Coast Line enters Monterey County in Aromas, heads west down the Pajaro Valley to Watsonville Junction (Pajaro), turns south, enters the Salinas Valley, and extends down the length of the Valley to the San Luis Obispo County line. Most of the Coast Line is single-tracked.

The Monterey Branch line from Castroville to Monterey passes through the Cities of Marina and Seaside and through Fort Ord and terminates at Cannery Row in Monterey. This 12.9-mile, single-track branch line is inactive and is owned by the TAMC. In several places in Seaside and Monterey, the tracks have been paved over to accommodate the Monterey Bay Coastal Trail, which runs between Marina and Pebble Beach.

Rail service today is limited to four (4) to six (6) freight trains per day running between Los Angeles and the San Francisco Bay Area. Amtrak's Coast Starlight, a passenger line, stops at Salinas once daily, in each direction, on its run between Seattle and Los Angeles. The nearest commuter rail stop to Monterey County is the Caltrain depot in Gilroy in Santa Clara County. Caltrain operates commuter rail service between Gilroy and San Francisco five (5) days a week during the morning and evening commute hours. Caltrain provides frequent daily service between San Jose and San Francisco.

Future Passenger Rail Service Plans

TAMC is planning to extend Caltrain service from Gilroy to Monterey County, including stops in Pajaro, Castroville, and Salinas. Information available on the TAMC website indicates that initial plans for service include up to four (4) weekday roundtrips between Salinas and San Francisco, with new intermediate stops at Pajaro and Castroville. The estimated cost of the extension of service is $101 million, with service beginning as early as 2011. The route is expected to generate an annual ridership of 530,000. The project is currently in the design and engineering stage.

To accommodate commuter rail service, track improvements would be made to the Coast Line between Gilroy and Salinas; stations would be built at Pajaro and Castroville; the existing train station in Salinas (also referred to as the "Intermodal Transportation Center") would be expanded; and a new layover facility would be constructed in Salinas. Under the preferred alternative, the Pajaro station would be located adjacent to Salinas Road and the Castroville station would be located north of Highway 156. Note that the County of Monterey adopted a Community Plan for Castroville in 2007 that envisions residential and commercial development on 145 acres around the proposed train station and includes elements designed to encourage rail ridership.

The Santa Cruz County Regional Transportation Commission is in the process of negotiating the acquisition of the Santa Cruz Branch line from Union Pacific Railroad, extending from Pajaro/Watsonville to Davenport (Santa Cruz County). The rail line may be used for passenger rail service. Future passenger rail service between Santa Cruz County and the San Francisco Bay Area may result in additional passenger rail service in Monterey County.

TAMC is also studying restoring service to the Monterey Branch line between Castroville and Monterey. These studies of Monterey Peninsula Fixed Guideway Service include sponsoring alternatives analysis, environmental studies, and right-of-way investigations. The route would connect the planned Caltrain service in Castroville to the Peninsula, with stations in Monterey, Seaside, Sand City, Marina/CSUMB, and Castroville. Options under consideration include bus rapid transit (BRT), light rail and express bus service. The project is currently under environmental review, with service anticipated to being in 2014.

Exhibit 4.6.4 depicts the various passenger rail service options in Monterey and surrounding counties being explored by various transportation agencies at the present time.

4.6.2.11 Water Transportation

There are two harbors in Monterey County; Monterey Harbor, and Moss Landing Harbor. Both harbors are classified as small craft harbors, serving commercial fishing vessels and pleasure craft. There are nearly 500 berths, 150 privately owned mooring buoys, and 39 seasonal, rental moorings in the Monterey Harbor.

Nearly 25 percent of the vessels in the Monterey Harbor have commercial uses. Moss Landing Harbor provides 620 berths. The demand for berths exceeds the supply, and waiting periods for berths vary based on the size of the vessel. The estimated waiting periods for small vessels range from three (3) to five (5) years; mid-size vessels, eight (8) to ten (10) years; and up to 15 years for large vessels.

4.6.2.12 Bicycle Transportation

There are approximately 240 miles of bikeways on state, county, and local roads within Monterey County. Caltrans maintains a majority of the bikeways, including the Pacific Coast Route, which is a 120-mile Class III bicycle route that follows the coastline. The remaining bicycle facilities are maintained by the Cities and County and are shown in **Table 4.6-9** by classification and distance.

Table 4.6-9. Bicycle Facilities in Monterey County

Facility Type	Miles of Facility	Description
Class I	27.6	Dedicated bicycle/pedestrian path
Class II	57.4	Striped bicycle lane
Class III	41.0	Signed bike route without lanes
Total	**126.0**	

Source: TAMC 2005 General Bikeways Plan.

Notes: Includes bike facilities in cities and unincorporated county areas.

The largest concentration of bicycle trips is in the northwestern region of the County, which has the highest population density. TAMC estimated 1,436 daily commuter bicycle trips were made by Monterey County residents in 2005. Exhibit 4.6.5 depicts the 2008 Transportation Agency for Monterey County Bicycle Map.

4.6.2.13 Regulatory Framework

California Department of Transportation (Caltrans)

Caltrans builds, operates, and maintains the State Highway system, including the Interstate Highway system. Caltrans' mission is to improve mobility statewide. The department operates under strategic goals to provide a safe transportation system, optimize throughput and ensure reliable travel times, improve the delivery of state highway projects, provide transportation choices, and improve and enhance the states investments and resources. Caltrans controls the planning of the state highway system and accessibility to the system. Caltrans establishes LOS goals for highways and works with local and regional agencies to assess impacts and develop funding sources for improvements to the State Highway system. Caltrans requires encroachment permits from agencies or new development before any construction work may be undertaken within the state's right-of-way. For projects that would impact traffic flow and levels of services on state highways, Caltrans would recommend measures to mitigate the traffic impacts.

Monterey County Public Works Department

The Monterey County Public Works Department is responsible for capital facility planning and maintaining roads, bridges and related facilities, as well as storm drains within the public right of way, sanitation district collection, treatment, and disposal facilities, County Service Area urban services, and County landfills, within the unincorporated area of the County. The department works with the County Planning Department to review land development applications for compliance with Local and State regulations (private roads, driveways and County maintained roads). The department administers encroachment permits for work performed within County rights of way, such as underground utility work, and driveways and road approaches; permits street closures; and issues transportation permits for County roads.

Transportation Agency for Monterey County (TAMC)

TAMC is an independent agency of local officials who oversee planning and funding of regional transportation improvements throughout Monterey County. The agency is directed by elected officials from each of the 12 incorporated cities in Monterey County and the County Supervisors. TAMC prepares the Regional Transportation Plan (RTP) and oversees the implementation of its recommended improvements. The RTP plans and programs local, state, and federal transportation funds for the development of transportation projects in Monterey County over a twenty-five year period conforming to State and Federal requirements. The RTP identifies existing and future transportation related needs, includes all modes of travel, and identifies realistic transportation improvements that would be implemented with anticipated available funding.

Association of Monterey Bay Area Governments

AMBAG was established to conduct planning and study of regional land use, transportation, and economic issues of concern to the Counties and Cities in Monterey, San Benito, and Santa Cruz Counties. Although AMBAG is not a regulatory agency, it prepares studies, plans, policy and action recommendations that may be incorporated into regulatory documents. AMBAG is represented by locally elected officials appointed by their respective City Council or Board of Supervisors. In addition to its transportation planning and study functions, and policy recommendations, AMBAG develops and maintains a regional travel demand forecasting model used for the planning of regional transportation facilities and the assessment of development proposals.

Local Agencies

The incorporated Cities of Salinas, Monterey, Carmel, Del Rey Oaks, Gonzales, Greenfield, King City, Marina, Pacific Grove, Sand City, Seaside, and Soledad have each adopted their own General Plans, polices and/or capital improvement programs which regulate development and transportation improvements within their jurisdiction. However, transportation network and circulation related impacts produced by land use decisions transcend City-County boundaries, requiring coordination between Monterey County and local agencies departments related to land use planning and transportation improvements.

4.6.3 Project Impacts

This section describes the CEQA impact analysis relating to transportation for the Project and its alternatives. It describes the methods used to determine the Project's impacts and lists the thresholds used to conclude whether an impact would be significant or not. Measures to mitigate significant impacts accompany each impact discussion.

4.6.3.1 Methodology

Roadway level of service impacts of the 2007 General Plan on Monterey County, and regional roadways are evaluated for the following five analysis scenarios:

- Existing Conditions (Year 2008)
- Existing plus Project (Development to the year 2030)
- 2030 Cumulative Conditions (Cumulative and project development to the year 2030)
- Existing plus Project (Buildout of the General Plan in 2092)

- Buildout Cumulative Conditions (Cumulative and project development to the year 2092)

Each of the scenarios incorporates different land use and roadway network assumptions for Monterey County. These assumptions are described in the next section. For each scenario, projected daily roadway segment traffic volumes are used to calculate the roadway's level of service which are compared to the County's roadway level of service standard. The results are used to identify roadway segments that fail to meet County standards and significant impacts.

Roadway segment level of service is based on the performance measure of the ratio daily traffic volume to daily roadway capacity (V/C Ratio), a theoretical planning measure that estimates whether a roadway will experience peak hour congestion by comparing traffic demand to the number of lanes available. A ratio greater than 1.0 indicates that traffic demand would exceed theoretical capacity and traffic would become gridlocked. In actuality, roadways can accommodate more traffic than the theoretical daily capacity, but the V/C Ratio planning measure is a good indicator of expected peak hour traffic congestion.

This performance measure is a coarse planning tool, but one that is appropriate for a generalized long-range programmatic assessment such as this General Plan. This generalized planning tool is based on the 2000 Highway Capacity Manual and uses general default values. It is intended for broad applications such as statewide or countywide analyses, potential problem identification, and future year analyses. This level of analysis is typically conducted using daily traffic projections and tends to over-estimate traffic impacts.

At the project-specific or small planning area level of assessment, traffic analyses should conducted at the peak hour level, with more detailed and specific operational input to roadway and intersection characteristics (i.e., number of turning lanes, signal timing, etc.).

While the County's level of service (LOS) standard (LOS D) is applied to both peak hour and daily traffic conditions, daily traffic projections are used in the analysis of the 2007 General Plan because the regional transportation planning tool (the AMBAG Travel Demand Forecasting Model) was developed and validated for daily traffic conditions.

4.6.3.2 Analysis Scenarios

Table 4.6-10 summarizes the land use and transportation network assumptions used in each analysis scenario. Additional information describing the assumptions for each scenario and the methodology for developing projections are provided below. Table 4.6-11 compares the population, employment and housing unit projections analyzed in each of the scenarios. Population and

employment forecasts are divided into incorporated and unincorporated portions of the County[1].

Table 4.6-10. Summary of Land Use and Transportation Network Assumptions

Scenario	Unincorporated Land Use	Incorporated Land Use	Transportation Network
Existing (2008)	Existing Roadway Traffic Volumes		
Existing plus Project Buildout	Buildout of 2007 General Plan	2000 AMBAG Data (2004 version)	AMBAG 2000 Base Network Modified to 2008 [1]
Existing plus Project (2030)	Prorated Buildout of 2007 General Plan to 2030	2000 AMBAG Data (2004 version)	AMBAG 2000 Base Network Modified to 2008 [1]
Cumulative 2030	Prorated Buildout of 2007 General Plan to 2030	2030 AMBAG Projections (2004 version)	2008 Modified Network with proposed TAMC and County Projects
Cumulative Buildout	Buildout of 2007 General Plan	Projected Buildout based on 2030 AMBAG Model	2008 Modified Network with proposed TAMC and County Projects
Cumulative 2030 Prior Land Use (No Project)	2030 AMBAG Projections (2004 version)	2030 AMBAG Projections (2004 version)	2008 Modified Network with proposed TAMC and County Projects

[1] The AMBAG 2000 network represents the year 2000 baseline network for which the model was validated. To reflect 2008 conditions, the 2000 network was modified to reflect completed projects on County roads.

[1] To provide for an equivalent comparison, portions of the County that are currently unincorporated but are forecast to be annexed to cities prior to 2030 are included in the incorporated category for all scenarios.

Table 4.6-11. Population, Housing Unit and Employment Projections by Scenario

	Year 2000	Existing plus Project Buildout	Existing plus Project (2030)	Cumulative 2030	Cumulative Buildout
Countywide					
Housing Units	129,571	168,904	143,009	187,022	290,631
Population	401,499	509,692	437,665	602,790	937,373
Employment	222,471	304,388	253,060	335,362	520,531
Unincorporated					
Housing Units	35,252	74,585	48,690	48,690	74,585
Population	95,047	203,240	131,213	135,431	207,458
Employment	65,242	147,159	95,831	97,109	148,431
Incorporated					
Housing Units	94,319	94,319	94,319	138,332	216,046
Population	306,452	306,452	306,452	467,359	729,915
Employment	157,229	157,229	157,229	238,253	372,100

Notes: Year 2008 population, employment and housing unit data not available, Year 2000 data is shown for comparison.
Existing plus Project 2030 and Cumulative 2030 land uses were adjusted to match the published AMBAG 2004 Population, Employment and Housing Unit forecasts.

Existing Conditions

Existing conditions represents approximate 2008 roadway conditions. Traffic volumes were obtained from various sources, including Caltrans, the County and for those regional roadways within incorporated areas, local agencies. Volumes from 2002 and 2006 were obtained where available and adjusted, based on annual growth rates, to represent 2008 conditions.

Roadway classification was based on aerial photographs, the Transportation Research Board's 2000 Highway Capacity Manual (HCM) classification criteria, and field observations.

Existing plus Project (Development to the year 2030)

Existing plus Project Conditions represents development forecasted to occur in unincorporated areas of the County by the year 2030. It is a prorated portion of the forecast buildout of unincorporated areas (described below). The amount of total development in unincorporated areas assumed under this scenario matches the amount of development in unincorporated areas projected by the AMBAG 2004 forecast to the year 2030. Employment data for unincorporated portions of the County was obtained from the year 2030 AMBAG forecasts. Unincorporated

County population and employment forecasts in 2030 are from the currently approved AMBAG Travel Demand Forecasting Model (AMBAG Model)[2].

The AMBAG development projections prepared in 2004 (the currently adopted regional forecast) are conservative since AMBAG has recently developed, but not yet adopted, new growth projections (2008) that are significantly lower than their 2004 projections. However, since the new projections have not yet been adopted and the approved AMBAG model remains based on 2004 projections, the 2007 General Plan in 2030 remains consistent with AMBAG adopted population and employment forecasts.

No change to the base model land use was made within incorporated areas. The coastal areas (including Big Sur and the Del Monte Forest) do not include any growth as new development is not expected to occur in these areas.

This scenario utilizes the modified AMBAG base year roadway network reflecting 2008 conditions. No major improvement projects that would affect regional roadways have been constructed following the last revision to the model network. To develop 2030 traffic projections the percent annual growth on each roadway segment between the base model (year 2000) and the Existing plus Project (year 2030) scenario was applied to 2008 traffic volumes over 22 years reflecting growth from 2008 to 2030.

2030 Cumulative Conditions with Project (Cumulative and Project Development to the Year 2030)

2030 Cumulative Conditions represent forecast year 2030 conditions with implementation of the 2007 General Plan. Development in unincorporated portions of the County was determined by the methodology described in the Existing plus Project (Development to the year 2030) scenario described above. Development in incorporated portions of the County, and in adjacent counties including Santa Cruz, San Benito and parts of Santa Clara, was obtained directly from the Year 2030 AMBAG 2004 forecasts. The cumulative roadway level of service analysis includes key roadways external to Monterey County.

The roadway network in this scenario represents a conservative estimation of capital projects that would be constructed by the year 2030. These include the projects adopted in the Transportation Agency of Monterey County (TAMC) regional fee program, and the capacity enhancements proposed by the County to be included in the development of a Countywide traffic impact fee program, as specified in 2007 General Plan Policy C-1.8.

Table 4.6-12 describes the sixteen TAMC fee program projects. In addition to the regional roadways, the TAMC projects include capacity-enhancing projects on County roadways. Table 4.6-13 describes the capacity enhancing projects

[2] AMBAG Model developed using 2004 population and employment growth projections.

identified by the County in the development of a Countywide Traffic Impact Fee Program.

Table 4.6-12. TAMC Regional traffic Impact Fee Program Projects

SR 1 - Sand City / Seaside Widening	Highway 1 (Seaside – Sand City)	Widen Highway 1 to six lanes from Fremont Ave to at least Canyon Del Rey and make interchange and related local road improvements in the vicinity of Canyon Del Rey and Fremont Avenues.
SR 68 - CHOMP Widening	Between Highway 1 and Community Hospital of Monterey Peninsula	Widen Holman Highway 68 from CHOMP to Hwy 1 to 4 lanes and make operational improvements at the Hwy 68 – Hwy 1 interchange.
SR 156 Widening	North Monterey County from Castroville Blvd to the 156/101 Interchange	Widen existing highway to 4 lanes and upgrade highway to Freeway status with appropriate interchanges. Interchange modification at US 156 and 101.
Marina - Salinas Corridor	Between Marina and Salinas	Widen Davis Road to 4 lanes from W Blanco Rd to Reservation Road, Widen Reservation Road to 4 lanes from Davis Road to existing 4 lane section adjacent to East Garrison, Widen Imjin Parkway to 4 lanes from Reservation Road to Imjin Road, reconstruct 12th street (Imjin Parkway) interchange.
Del Monte - Lighthouse Corridor Improvements	City of Monterey	Add eastbound lane from El Estero to Sloat Ave. Intersection improvements to Sloat Ave and Aguajito Ave including addition of left turn lanes and signal operations improvements. Widen Lighthouse Ave to 3 lanes (2 lanes for traffic, 1 lane for transit) and convert to one-way heading east. Widen Foam St to 3 lanes from the Lighthouse split to Drake Ave. Widen Hoffman to 2 lanes between Foam and Lighthouse and make one-way from Foam towards Lighthouse. At David Ave/Lighthouse interchange, add double left-turn onto Lighthouse. Add curved return lane on west-side of Lighthouse/Foam split to allow traffic to flow back onto Foam.
US 101 - San Juan Road Interchange	Counties of Monterey and San Benito	Remove three at-grade intersections (Dunbarton Road, San Juan Road and Cole Road) and construct one interchange near the Red Barn.
US 101 - South County	US 101 north of Soledad	Construct 2-lane frontage roads on west-side of US-101 from Harris Rd/Abbott St interchange to Chualar. Remove existing segment of Abbott St from US-101 to Harris Rd. Additional 2-lane frontage rd on east side of US-101 from Chualar to Harris Rd. Construct an interchange at Chualar.

Westside Bypass	City of Salinas	Construct 4-lane westside bypass around Salinas from Boranda to Davis Rd, including 4-lane Rossi St connector. Includes widening of Davis to 4 lanes from bypass connection to W Blanco Rd.
SR 68 Commuter Improvements	Rte 68 between Monterey and Salinas	Widen SR 68 from existing 4 lane section adjacent to Toro park west to Corral De Tierra.
Harris Road / Eastside Connector	City of Salinas	Construct 4-lane arterial from US 101 to Williams Road and an interchange at Harris Rd / US 101.
G-12 South	Unincorporated Monterey County	Widen San Miguel Cyn Rd to four lanes from just south of Moro Rd through Castroville Blvd. Add climbing lane on southbound San Miguel Cyn Rd just north of Strawberry Rd. Add two-way left-turn lane on San Miguel Cyn Rd between Castroville Blvd and Echo Valley Rd. Add a traffic signal at Echo Valley Rd.
G-12 North	Unincorporated Monterey County	Add a two-way left-turn lane on Hall Rd between San Miguel Cyn Rd and Elkhorn Rd. Widen Elkhorn Rd to four lanes from Hall Rd to Werner Rd.
Gloria Rd / US 101 Interchange	Gonzales	Re-align and reconstruct the Gloria Road / US 101 interchange. A Project Study Report is currently underway.
US-101/South Soledad Interchange & US-101/North Soledad Interchange	South Soledad/North Soledad	Modify South Soledad interchange and construct related ramp improvements to accommodate future widening of US-101 to six lanes as well as the planned SR-146 Bypass from Front Street to Metz Road. Modify North Soledad interchange and construct related ramp improvements to accommodate future widening of US-101.
Walnut Ave / US 101 Interchange	Greenfield	Relocate and replace the existing Walnut Avenue / US 101 interchange. Cost estimate assumes selection of Alternative 3 from the Project Study Report currently being prepared.
First Street / US 101 Interchange	King City	Extension and grade separation over railroad tracks of San Antonio Drive (King City loop road) from Lonoak Road to interchange of First Street and US 101.

Source: Regional Impact Fee Nexus Study Report, Kimley-Horn and Associates, Inc.

Table 4.6-13. Countywide Capacity Enhancements Proposed in Countywide Traffic Impact Fee Program

San Juan Road Improvements	North County	Construct traffic signals at the Aromas Road and Carpenteria Road intersections. Widen to four lanes from Pajaro to US-101.
G-12 Improvements	North County LCP	Widen to four lanes on San Miguel Canyon Road between Castroville Boulevard and Hall Road. Perform intersection improvements on Hall Road at Sill Road and Willow Road. Widen to four lanes on Salinas Road between Railroad Avenue and Porter Drive.
G-17 Widening (Reservation Road)	Toro/Greater Salinas	Widen to four lanes on Reservation Road from Davis Road to SR-68. Construct traffic signal at Davis Road.
G-17 Widening (River Road)	Toro	Widen to four lanes from Las Palmas Road to Las Palmas Parkway.
Salinas Road Improvements	North County/North County LCP	Widen to four lanes between future SR-1 and Salinas Road interchange and existing four-lane section. Install traffic signal and construct intersection improvements at Werner Road intersection. Construct signals on Elkhorn Road at Salinas Road and Werner Road intersections. Alternatively, re-align Salinas Road and Werner Road to intersect Elkhorn Road at a single location with a traffic signal.
Castroville Improvements	North County	Extend Castroville Boulevard to Blackie Road. Construct Artichoke Avenue Phases I, II and III from SR-1 to Poole Street. Implement Merritt Street corridor improvements.
San Juan Grade Road Improvements	Greater Salinas	Widen to four lanes from Salinas City Line to Crazy Horse Canyon Road. Install traffic signals at Rogge Road, Hebert Road and Crazy Horse Canyon Road.
Crazy Horse Canyon Road Improvements	North County	Add turn lanes or passing lanes from San Juan Grade Road to US-101.
Hebert Road/Old Stage Road Widening	Greater Salinas	Widen Hebert Road to four lanes from San Juan Grade Road to Old Stage Road and widen Old Stage Road to four lanes from Hebert Road to Natividad Road. Install traffic signal at Natividad Road. Add turn lanes on Old Stage Road from Natividad Road to Williams Road.
Espinosa Road Widening	Greater Salinas	Add turn lanes or passing lanes on Espinosa Road between SR-183 and US-101.

Source: Kimley-Horn and Associates, Inc.

Existing plus Project Buildout of the General Plan

Existing plus Project Conditions Buildout of the General Plan represents existing conditions plus full buildout of unincorporated County land allowed under the 2007 General Plan. The number of potential housing units that can be developed in unincorporated Monterey County was determined from the number of vacant residential lots and the assigned zoning within each planning or community area; calculated to be 35,918 new housing units beyond 2006.

Buildout of housing units was converted to an annual rate of development, calculated to be 417 housing units. Dividing the total amount of buildout development by the annual rate of development yielded the number of years to reach buildout, calculated to be 86 years beyond 2006, or the year 2092.

Employment projections are based on the rate of growth in housing units and population by maintaining the employee per housing unit ratio contained in the 2004 AMBAG land use forecasts. In this scenario, no changes were made to the land uses within incorporated areas.

The coastal areas (including Big Sur and the Del Monte Forest) do not include any growth as new development is not expected to occur in these areas.

This scenario uses the modified AMBAG base year roadway network reflecting 2008 conditions. No major improvement projects that would affect regional roadways have been constructed following the last revision to the model network. To develop buildout (year 2092) traffic projections the percent annual growth on each roadway segment between the base model (year 2000) and the Existing plus Project (buildout to the year 2092) scenario was applied over 84 years (2008 to 2092) to existing 2008 traffic volumes.

The traffic projections show traffic volumes on segments of U.S. 101 and SR-1 decreasing between base year and existing plus project conditions. This is due to changes in travel patterns because of upstream or downstream congestion (traffic finding alternative routes) and/or changes in proximity between jobs and housing changing overall commute patterns. As a conservative approach so that the projections do not result in negative growth, the traffic projections were adjusted to maintain a minimum of a 0.1% annual increase for all state highways. This methodology was utilized for all model scenarios.

Buildout Cumulative plus Project (Cumulative and Project Development to the Year 2092)

The Buildout Cumulative plus Project scenario forecasts year 2092 conditions. Development in unincorporated portions of the County was determined by the methodology described in the Existing plus Project (Buildout of the General

Plan) scenario described above. Development in the incorporated portion of the County was projected at three times the rate of development in the unincorporated portion of the County. This 3:1 ratio for development in the incorporated part of the County versus the unincorporated part of the County is based on projected housing unit development out to 2030 in the adopted 2004 and proposed 2008 AMBAG Population, Employment and Housing Unit forecasts. The AMBAG forecasts indicate that the incorporated areas grow at a rate three times that of unincorporated areas.

Employment in the incorporated portions of the County was increased at the same rate as the growth of housing units, based on a methodology to maintain a constant employee per housing unit ratio.

The network used for this scenario is the improved network, which includes the above-mentioned TAMC fee program and projected County improvement projects. No capital roadway projects were assumed beyond those identified for the year 2030 as described above.

To develop buildout (year 2092) traffic projections the percent annual growth on each roadway segment between the base model (year 2000) and the Existing plus Project (buildout to the year 2092) scenario was applied over 84 years (2008 to 2092) to existing 2008 traffic volumes.

4.6.3.3 Study Area

The roadways selected for inclusion in this analysis include all state highways within the County, Major County roads, regional arterials, and local roads with a current volume of at least 3,000 daily trips. This includes 281 segments on 100 different highways and roadways within Monterey County. The roadways included in the study area are shown on Exhibit 4.6.6.

In addition to Monterey County roadways, the analysis includes regional roadways external to the County that might be impacted by growth allowed under the General Plan in Santa Cruz, San Benito, and San Luis Obispo Counties. Regional roadways external to the county studied include:

- Santa Clara County
  - US Highway 101 - Cochrane Rd to E Dunne Ave
  - US Highway 101 - Masten Ave to Leavesley Rd/SR-152 West
  - US Highway 101 - Monterey Rd to SR-25
  - SR-152 -SR-156 to Merced County
- Santa Cruz County
  - SR-1 - Soquel Ave to 41st St
  - SR-1 - Airport Blvd to SR-152

- SR-1 - Harkins Slough Rd to SR-129
- SR-1 - SR-129 to Monterey County
- SR-17 - Santa Clara County to Granite Creek Rd
- SR-129 (Riverside Rd) - Lakeview Rd to Carlton Rd

- San Benito County
  - US Highway 101 - Santa Clara County to SR-129
  - SR-25 (Bolsa Rd) - Santa Clara County to SR-156
  - SR-156 - Salinas Rd to Union Rd
- San Luis Obispo County
  - US Highway 101 – Monterey County to San Miguel Ave

4.6.3.4 Criteria for Determining Significance

This EIR evaluates potential impacts under six thresholds of significance including roadway level of service, air traffic, roadway hazards, emergency access, parking and alternative transportation. These thresholds conform to CEQA impact assessment requirements. Each threshold of significance is described below.

- Roadway Level of Service – The General Plan does not specify the methodology or measure of performance used to determine level of service, which can vary depending on the characteristics and scale of the project. For analysis of the General Plan, the level of service (LOS) for roadway segments is based on the ratio of projected daily traffic volume to the capacity of the roadway (V/C Ratio). This measure is derived from the methodology contained in the 2000 Highway Capacity Manual. It is a planning methodology suitable for evaluating long-range impacts of large areas such as Monterey County. This measure is applied to two of the three tiers of impacts described earlier; Tier 2: county roads and Tier 3: regional roads and major roads in incorporated cities. This measure is not applied to the first tier of impacts-direct impacts-which are impacts specific to individual developments related to access and localized impacts. The LOS standard in the 2007 General Plan is LOS D and can be applied to either average daily traffic or peak hour traffic. For the analysis of the General Plan, the analysis is based on daily traffic volumes.

  The 2007 General Plan would have a significant effect on the street and highway system if the land use development allowed under the General Plan would:

  - Cause an increase in traffic, which would cause a State Highway or County roadway to fall below the County's adopted standard of LOS D, or add any traffic to a County roadway or State Highway that operates below LOS D without the project and the project worsens the LOS based

on the measure of performance. The exception to this criterion is Policy C-1.1 in the General Plan Update which allows a lower LOS standard as:

- established in the community planning process,
- facilities operating below LOS D at the time the 2007 General Plan is adopted if the project does not further degrade the measure of performance, and
- established in Area Plans.

- Air Traffic – Would the development allowed under the General Plan result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Roadway Hazards – Would the development allowed under the General Plan substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Emergency Access – Would the development allowed under the General Plan result in inadequate emergency access;
- Alternative Transportation – Would the development allowed under the General Plan conflict with adopted policies, plans, or programs supporting alternative transportation or generate pedestrian, bicycle, or transit travel demand that would not be accommodated by current pedestrian facilities, bicycle development plans, or long-range transit plans.

4.6.3.5 Impact Analysis

This section describes the CEQA impact analysis relating to transportation impacts for the General Plan with development to 2030 and to buildout. It describes the methods used to determine the Project's impacts and identifies the thresholds used to conclude whether an impact would be significant. For each planning horizon and scenario, the roadway level of service impacts are presented in the three tiers described earlier; project-specific localized impacts, County roadways, and regional roadways (State Highways, major city streets, and regional roadways external to the County). Each scenario also presents a discussion of the impacts for the additional significance criteria. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Roadway Level of Service

Existing plus Project Development to the Year 2030

Project-Specific Impacts of the Project

Impact TRAN-1A: Development allowed under the 2007 General Plan would cause project-specific impacts on County roadways which would cause roadways to fall below the acceptable LOS standard D. (Less-Than-Significant Impact).

Impact of Development with Policies

Project-specific impacts of new development are localized impacts that affect the immediate surrounding transportation system, including access and circulation necessary for the development to function properly and safely. Direct impacts occur where new development needs to gain access to County roadways and/or where traffic generated by new development causes project-specific deficiencies in roadway or intersection operations in the immediate proximity of the development.

Project-specific impacts would occur with the first phases of development (the first uses to be constructed and occupied that require access to the transportation system). New development would be fully responsible for the implementation of mitigation measures or would be responsible for its fair-share of the mitigation depending on the extent of the impact and the development's contribution to the impact. Under 2007 General Plan policies new development is required to mitigate project-specific local impacts to maintain the County's LOS standard and to provide adequate access and circulation facilities. These policies restrict new development or require phasing of new development so that it is concurrent with transportation improvements.

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth measures to minimize adverse impacts of project-specific localized impacts of development. These measures apply to the project-specific impacts of development, but also to measures that may improve LOS indirectly.

Circulation Element

Policy 1.3 requires developments that degrade roads beyond LOS D to establish a plan for improving those facilities. Policy 1.4 requires circulation improvements that mitigate project-specific localized development impacts to be constructed concurrently with the development or for the development to pay a fair share towards the

improvements. Policies 2.1, 2.2, and 2.7 require land uses to be located with access to transportation facilities and for those facilities to expedite access to the development. Policies C3.5, 4.3, 4.5, and 4.9 require development to design public facilities to accommodate pedestrians, bicycles, and transit thus reducing the impacts caused by automobile traffic.

Land Use Element

Policies LU 1.4 and 1.7 require development to occur only when adequate transportation facilities exist and to encourage phasing and clustering of development to provide for adequate long-range planning of infrastructure.

Area Plan Policies

The Area Plans contain a number of policies related to project-specific localized impacts. The Area Plan policies and mitigations would supplement those contained in the Area Plans, consistent with the 2007 General Plan.

North County Area Plan

The North County Area Plan Policy NC 1.1 requires new commercial development to minimize its traffic impacts through mitigation.

Greater Salinas Area Plan

The Greater Salinas Area Plan Policy GS 1.7 requires new development in the Spence/Potter/Encinal Road Area to study and mitigate its impact on highway access and road capacity.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policy 1.4 requires new development in the Spence/Potter/Encincal Road Area to study and mitigate its impact on highway access and road capacity.

Significance Determination

Project-specific impacts of new development are localized impacts that affect the immediate surrounding transportation system, including access and circulation necessary for the development to function properly and safely. Project-specific impacts occur where new development needs to gain access to county roadways and/or where traffic generated by new development causes project-specific deficiencies in roadway or intersection operations. Project-specific impacts would occur with the first phases of development.

New development is required to prepare a project-level traffic study, or project-level Environmental Impact Report. Impacts to roadway LOS or project access would be identified in these studies and development would be fully responsible for the implementation of mitigation measures or would be responsible for its fair-share of the mitigation depending on the extent of the impact and the development's contribution to the impact. If a roadway already falls below the County's LOS standard, then the development is required to mitigate its impact so that the measure of performance (e.g., volume to capacity ratio, peak hour average delay, etc.) of the roadway does not degrade beyond the level without the development. This is a less than significant impact.

Mitigation Measures

Impacts are less than significant, therefore no mitigation is necessary.

Significance Conclusion

Implementation of the 2007 General Plan consistent with policies related to project-specific localized impacts (Policy C-1.4, new development is required to mitigate project-specific local impacts to maintain the County's LOS standard and to provide adequate access and circulation facilities. Policy C-1.3 restricts new development or requires the phasing of new development so that it is concurrent with transportation improvements) would have a less than significant impact and no mitigation is required.

County and Regional Roadway Level of Service Impacts (Existing plus Project Development to the year 2030)

Impact TRAN-1B: Development of the land uses allowed under the 2007 General Plan would create *traffic increases on* County and Regional roadways which would cause the LOS to exceed the LOS standard, or contribute traffic to County and Regional roads that exceed the LOS standard without development. (Significant and Unavoidable Impact)

Impact of Development with Policies

The LOS on study area roadways for the Existing plus Project Development to the year 2030 is shown in Exhibit 4.6.7. A detailed analysis of roadway level of service by segment is included in the Appendix.

Table 4.6-13 shows the roadway segments operating at deficient LOS D, LOS E or LOS F under this scenario and compares the segments to their LOS under existing conditions. Some roadway segments experience an improvement in the volume to capacity ratio as a result of the 2007 General

Plan. This is due to a change in traffic patterns in the future causing the redistribution of housing and jobs.

As shown in Table 4.6-13, there are 10 segments that operate at LOS E and 25 segments that operate at LOS F in this scenario. In comparison, under existing conditions, 29 of the segments in Table 4.6-14 currently operate at LOS E or F. The development in the County up to the year 2030 causes an additional six roadway segments to exceed the county's LOS threshold. Impacts of the 2007 General Plan within the Carmel Valley Plan Area are discussed in the next section (Year 2030 Cumulative Conditions with Project).

Table 4.6-14. County Roadway Segments Operating at LOS E or F under Existing plus Project Development to the Year 2030

		Existing Conditions		Existing + Project Development to the Year 2030	
Roadway Segment		V/C Ratio	LOS	V/C Ratio	LOS
Roadway Segments Operating at LOS F					
County Road G11 (San Juan Rd)	Salinas Rd to San Miguel Canyon Rd	0.942	E	1.087	F
County Road G12 (Salinas)	Porter Dr to Railroad Ave	1.236	F	1.226	F
County Road G12 (Elkhorn Rd)	Salinas Rd to Hall Rd	1.339	F	1.185	F
County Road G12 (Hall Rd)	Elkhorn Rd to San Miguel Canyon Rd	1.879	F	1.627	F
County Road G12 (San Miguel Canyon Rd)	Strawberry Rd to Castroville Blvd	1.485	F	1.216	F
County Road G12 (San Miguel Canyon Rd)	Castroville Blvd to US-101	1.486	F	1.130	F
County Road G14 (Jolon)	US-101 to San Lucas Rd	0.582	D	1.062	F
County Road G17 (River Rd)	Las Palmas Rd to Las Palmas Pkwy	0.805	D	1.007	F
Blanco Rd	Cooper Rd to Armstrong Rd	2.146	F	2.100	F
Blanco Rd	Armstrong Rd to Davis Rd	2.292	F	2.242	F
Carpenter St	Serra Ave to SR-1	1.354	F	1.433	F
Davis Rd	Blanco Rd to Reservation Rd	0.958	E	1.021	F
Ocean Ave	Carmel City Line to SR-1	1.229	F	1.271	F
Pine Canyon Rd (King City)	Merrit St to Jolon Rd	0.583	D	1.646	F
Porter Dr	San Juan Rd to Santa Cruz County Line	1.423	F	1.471	F

Roadway Segment		Existing Conditions V/C Ratio	Existing Conditions LOS	Existing + Project Development to the Year 2030 V/C Ratio	Existing + Project Development to the Year 2030 LOS
Rio Rd	Carmel City Line to SR-1	1.161	F	1.219	F
San Juan Grade Rd	Salinas City Line to Russell Rd	1.015	F	1.164	F
San Juan Grade Rd	Russell Rd to Rogge Rd	0.747	D	1.014	F
Roadway Segments Operating at LOS E					
County Road G11 (San Juan Rd)	Aromas Rd to Carpenteria Rd	0.938	E	0.967	E
Abbott St	SH 101 to Salinas City Line	0.896	E	0.878	E
Carpenter St	Carmel City Line to Serra Ave	0.828	E	0.802	E
Espinosa Rd	SR-183 to US-101	0.896	E	0.896	E
Harris Rd	Spreckels Blvd to Abbott St	0.844	E	0.813	E
Hebert Rd	San Juan Grade Rd to Old Stage Rd	0.443	D	0.885	E
Old Stage Rd	Hebert Rd to Natividad Rd	0.488	D	0.933	E
Porter Dr	Salinas Rd to San Juan Rd	0.967	E	0.942	E
Russell Rd	SR-101 to San Juan Grade Rd	0.661	D	0.802	E

Source: Kimley-Horn and Associates, Inc.

Table 4.6-15 presents the roadway segments operating at LOS E or LOS F under Existing plus Project Development to the Year 2030 conditions and compares the segments to their LOS under existing conditions. Exhibit 4.6.7 presents the segment LOS graphically. A detailed table showing the volume, the volume to capacity ratio and the resulting LOS for each Regional roadway segment is included in the Appendix. There are six (6) regional roadway segments that operate at LOS E and 51 segments that operate at LOS F under this scenario. Under existing conditions, 55 of these Regional roadway segments operate at LOS E or F, so development in the County up to the year 2030 causes an additional two (2) roadway segments to exceed the County's LOS threshold.

Table 4.6-15. Regional Roadway Segments Operating at LOS E or F under Existing plus Project (Horizon Year 2030) Conditions

Roadway Segment		Existing Conditions V/C Ratio	Existing Conditions LOS	Existing + Project Development to the Year 2030 V/C Ratio	Existing + Project Development to the Year 2030 LOS
Roadway Segments Operating at LOS F in the Existing plus Project Development to the Year 2030 Scenario					
US Highway 101	County Border to Crazy Horse Canyon Rd	1.044	F	1.067	F
US Highway 101	Crazy Horse Canyon Rd to San Miguel Canyon Rd	0.989	E	1.011	F
US Highway 101	San Miguel Canyon Rd to SR-156	1.441	F	1.474	F
US Highway 101	SR-156 to Pesante Rd	1.106	F	1.131	F
US Highway 101	Pesante Rd to Espinosa Rd	1.106	F	1.131	F
US Highway 101	Espinosa Rd to E Boronda Rd	1.098	F	1.123	F
US Highway 101	E Boronda Rd to W Laurel Dr	1.143	F	1.169	F
US Highway 101	W Laurel Dr to N Main St	1.107	F	1.140	F
US Highway 101	N Main St to E Market St	1.172	F	1.198	F
US Highway 101	E Market St to John St	1.114	F	1.145	F
SR-1	Salinas Rd to Struve Rd	1.546	F	1.582	F
SR-1	Struve Rd to Dolan Rd	1.667	F	1.703	F
SR-1	Dolan Rd to Molera Rd	1.496	F	1.530	F
SR-1	Molera Rd to SR-183	1.426	F	1.458	F
SR-1	Fremont Blvd to Canyon del Rey Blvd	1.006	F	1.027	F
SR-1	Canyon del Rey Blvd to Del Monte Ave	1.071	F	1.094	F
SR-1	N Fremont St to Aguajito Rd	1.411	F	1.443	F
SR-68 (Holman Highway)	Forest Ave to 17 Mile Dr	1.448	F	1.552	F
SR-68 (Holman Highway)	17 Mile Dr to Skyline Forest Dr	1.638	F	1.761	F
SR-68 (Holman Highway)	Skyline Forest Dr to CHOMP Dwy	1.638	F	1.761	F
SR-68 (Holman Highway)	CHOMP Dwy to SR-1	1.638	F	1.742	F
SR-68 (Monterey Salinas Highway)	SR-1 to Olmsted Rd	1.422	F	1.464	F
SR-68 (Monterey Salinas Highway)	Olmsted Rd to Canyon del Rey Blvd	1.422	F	1.431	F

Roadway Segment		Existing Conditions		Existing + Project Development to the Year 2030	
		V/C Ratio	LOS	V/C Ratio	LOS
SR-68 (Monterey Salinas Highway)	Canyon del Rey Blvd to Bit Rd	1.304	F	1.331	F
SR-68 (Monterey Salinas Highway)	Bit Rd to Laureles Grade Rd	1.304	F	1.307	F
SR-68 (Monterey Salinas Highway)	Laureles Grade Rd to Corral de Tierra	1.525	F	1.552	F
SR-68 (Monterey Salinas Highway)	Corral de Tierra to Portola Dr	1.617	F	1.638	F
SR-156	Castroville Blvd to US-101	1.902	F	1.939	F
SR-183 (Merritt St)	SR-156 to Blackie Rd	1.184	F	1.202	F
SR-183 (Castroville Rd)	Blackie Rd to Espinosa Rd	1.074	F	1.049	F
SR-218 (Canyon del Rey Blvd)	Fremont Blvd to Carlton Dr	1.099	F	1.130	F
SR-218 (Canyon del Rey Blvd)	Carlton Dr to SR-68	1.099	F	1.164	F
Foam St	Prescott Ave to Drake Ave	1.156	F	2.258	F
Foam St	Drake Ave to Lighthouse Ave	1.277	F	2.392	F
Lighthouse Ave	Prescott Ave to Private Bolio Rd	1.637	F	1.045	F
Lighthouse Ave	Private Bolio Rd to Pacific St	1.270	F	1.188	F
Lighthouse Ave	Pacific St to Washington St	1.124	F	1.061	F
Del Monte Ave	Washington St to Camino Aguajito	1.314	F	1.304	F
Del Monte Ave	Camino Aguajito to Casa Verde Wy	1.313	F	1.288	F
Del Monte Ave	Casa Verde Wy to SR-1	1.443	F	1.421	F
Fremont St	Abrego St to Camino Aguajito	1.065	F	1.052	F
Munras Ave/Abrego St	Soledad Dr to Via Zaragoza	1.226	F	1.338	F
Del Monte Blvd	SR-1 to Canyon del Rey Blvd	1.039	F	1.016	F
Del Monte Blvd	Canyon del Rey Blvd to Broadway Ave	1.058	F	1.049	F
Del Monte Blvd	SR-1 to Reindollar Ave	1.081	F	1.029	F
Del Monte Blvd	Reindollar Ave to Reservation Rd	1.929	F	1.838	F
John St	Abbott St to US-101	1.069	F	1.065	F
Davis Rd	W Laurel Dr to SR-183	1.057	F	1.110	F
Davis Rd	SR-183 to W Blanco Rd	2.428	F	2.521	F

Roadway Segments Operating at LOS E in the Existing plus Project Development to the Year 2030 Scenario

Roadway Segment		Existing Conditions V/C Ratio	Existing Conditions LOS	Existing + Project Development to the Year 2030 V/C Ratio	Existing + Project Development to the Year 2030 LOS
US Highway 101	John St to S Sanborn Rd	0.897	D	0.918	E
SR-1	Holman Hwy to Carpenter St	0.890	D	0.945	E
SR-183 (Castroville Rd)	Espinosa Rd to Cooper Rd	1.012	F	0.988	E
N Fremont St	Casa Verde Wy to SR-218	0.971	E	0.981	E
Sanborn Rd	US-101 to Abbott St	0.983	E	0.974	E
S Main St	Romie Ln to E Blanco Rd	0.817	D	0.854	E

Source: Kimley-Horn and Associates, Inc.

Table 4.6-16 presents compares existing and Existing plus Project Development to the Year 2030 roadway LOS on Regional roadways external to Monterey County. Traffic generated by the land uses allowed under the 2007 General Plan will produce inter-county travel between housing and jobs in Santa Cruz, San Benito, and Santa Clara counties, and to a lesser extent San Luis Obispo County. The affects of this inter-county travel is shown in the table.

The Existing plus Project Development to the Year 2030 is project level analysis required under CEQA. Under this scenario some of the external roadway segments experience an improvement over existing conditions. This is because the Existing plus Project Development to the Year 2030 only considers development of unincorporated Monterey County and does not include growth in incorporated Monterey County, or any growth in adjacent counties. Therefore, in this scenario where only growth unincorporated County is considered, there is a better balance of housing and jobs (both in numbers and proximity) within unincorporated Monterey County than if cumulative growth elsewhere were considered as well. This housing and jobs balance results in trips remaining internal to communities within unincorporated Monterey County and traveling shorter distances. This effect on travel is not found to this extent under cumulative conditions.

Table 4.6-16. Roadway Level of Service of Facilities External to Monterey County under Existing plus Project Development to the Year 2030

		Existing Conditions		Existing + Project Development to the Year 2030	
Roadway Segment		V/C Ratio	LOS	V/C Ratio	LOS
Santa Clara County					
US Highway 101	Cochrane Rd to E Dunne Ave	1.139	F	0.882	D
US Highway 101	Masten Ave to Leavesley Rd/SR-152 West	0.989	E	0.858	D
US Highway 101	Monterey Rd to SR-25	1.071	F	1.007	F
SR-152	SR-156 to Merced County	0.630	C	0.632	C
Santa Cruz County					
SR-1	Soquel Ave to 41st St	1.368	F	1.101	F
SR-1	Airport Blvd to SR-152	0.876	D	0.674	C
SR-1	Harkings Slough Rd to SR-129	0.608	C	0.466	B
SR-1	SR-129 to Monterey County	0.492	B	0.363	B
SR-17	Santa Clara County to Granite Creek Rd	0.958	E	1.005	F
SR-129 (Riverside Rd)	Lakeview Rd to Carlton Rd	0.847	D	0.871	D
San Benito County					
US Highway 101	Santa Clara County to SR-129	0.912	E	0.848	D
SR-25 (Bolsa Rd)	Santa Clara County to SR-156	1.196	F	1.080	F
SR-156	Salinas Rd to Union Rd	1.706	F	1.742	F
San Luis Obispo County					
US Highway 101	Monterey County to San Miguel Ave	0.300	A	0.308	A

Source: Kimley-Horn and Associates, Inc.

Impact of Goods Movement on Roadway Level of Service

The county's current truck traffic generation is expected to increase from 12,600 truck trips per day (2006) to 18,600 in 2030. This increase in freight movement is not significant enough to cause widespread capacity-related impacts, but will contribute large vehicle traffic to roadways and highways that are currently, or are projected to fall below the County's acceptable LOS standard and may cause the localized impacts on heavily traveled freight

routes (e.g., Highways 1, 101, 156, and 183) and within industrialized areas where truck traffic originates.

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth measures to minimize adverse impacts on level of service.

Circulation Element

The Circulation element contains a number of policies to mitigate the traffic impacts of the development allowed under the 2007 General Plan. These policies range from establishing performance standards to mechanisms to identify impacts and fund infrastructure improvements to requiring infrastructure for promoting the use of alternatives to the automobile. These policies are described below.

Circulation Element Policy 1.1sets a standard of LOS D on County roads establishing a minimum threshold beyond which mitigation measures are required. Policy1.2 sets standards for how to identify and implement transportation improvements to mitigate significant impacts, and Policy 1.3 requires developments that degrade roads beyond LOS D, or contribute traffic to roadways already exceeding LOS D, to establish a plan for improving those facilities.

Policy 1.4 requires circulation improvements that mitigate development impacts to be constructed concurrently with the development or for the development to pay a fair share towards the improvements. Policies C1.5 and 1.10 require transportation agencies to work together to improve congestion. This would occur through coordination of regional and countywide traffic impact fees, and development of the Regional Transportation Plan.

Policies 1.6 through1.9, and 1.11 address funding of transportation improvements by establishing impact fees, finding alternative funding sources, and prioritizing transportation funding. The County is currently preparing a countywide nexus study for establishing a Countywide Traffic Impact Mitigation Fee.

Policies 2.4 through 2.6 encourage reduction in personal automobile usage in favor of bicycle and transit usage to reduce the LOS impact caused by traffic generation. Policies 3.5, 4.3, 4.5, and 4.9 address the design of public facilities to accommodate pedestrians, bicycles, and transit to provide the necessary infrastructure to accommodate these modes and reduce traffic.

Public transit service, an important strategy in reducing traffic impacts, is addressed in Circulation Element Policies 6.1 through 6.9 by encouraging coordinated service between providers, regular

service for mobility-impaired people, and service to major traffic generating events or uses. Policies 8.1 through 8.4 encourage rail transportation to commercial centers and transit-oriented development to encourage use of public transportation, and to create mixed-use centers where walking and bicycling are viable modes of transportation. Policies 10.1through 10.7 promote bicycle as an alternative mode of travel by providing bike routes and bike parking along major roadways and visitor destinations.

Area Plan Policies

The Area Plans contain a number of policies related to LOS and mitigating traffic impacts. The Area Plan policies and mitigations would supplement those contained in the General Plan, consistent with the 2007 General Plan.

North County Area Plan

The North County Area Plan Policy 1.1 requires new commercial development in proximity to housing so that residents can minimize long distance travel and reduce traffic impacts. Policy 2.1 addresses providing a bypass of Highway 101 north of Salinas to provide additional highway capacity, and improve access to new development to minimize impacts to county and local roads.

Central Salinas Valley Area Plan

Central Salinas Valley Area Plan Policy 1.4 requires new development in the Spence/Potter/Encincal Road Area to analyze and mitigate its road capacity impacts.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Area Plan Policies 2.1 through 2.5 and 2.7 encourage transit use to decrease peak hour traffic and LOS impacts. These policies also provide for roadway improvements to Highway 68 and its alternate routes to improve existing and future deficiencies.

Greater Salinas Area Plan

The Greater Salinas Area Plan Policy 1.7 requires new development in the Spence/Potter/Encinal Road Area to study and mitigate the impact on highway access and road capacity. Policies 2.1 and 2.2 address congestion on Highway 101 by encouraging the bypass to add capacity and improve access. These policies also specify the need to design and implement an additional bypass road around Salinas (Western Bypass).

Carmel Valley Master Plan

The Carmel Valley Master Plan Policies 2.1, 2.3 through 2.6, and 2.13 through 2.15 encourage alternate modes of transportation including transit, bicycle, and pedestrian access to provide viable alternatives to driving and to reduce traffic impacts. They also consider improvements to Carmel Valley Road which would mitigate existing deficiencies and future LOS impacts. Policy 2.12 provides recommendations for road improvements to Highway 1, Laureles Grade, and Carmel Valley Road to achieve LOS C or LOS D as specified in the plan. Policy 2.19 requires evaluation and monitoring of streets and highways to identify when to implement improvements to meet LOS standards.

Toro Area Plan

Toro Area Plan Policies 2.1 through 2.7 and 2.9 through 2.10. encourage roadway and transit improvements to relieve congestion and identify funding sources from new developments.

Cachagua Area Plan

Cachagua Area Plan Policy 2.6 requires LOS C as an acceptable LOS within the planning area. New development in this plan area is required to meet this standard and mitigate impacts to maintain the standard.

South County Area Plan

The South County Area Plan Policy 1.2 encourages clustered development, which contributes to the mitigation of LOS impacts by creating an environment where people can walk, bicycle, or use transit as an alternative to driving.

2007 General Plan Policies Related to Goods Movement

The 2007 General Plan policies summarized below set forth measures to address the impacts of goods movement on traffic level of service.

Circulation Element

Circulation Element Policies C 2.1 and 2.3 encourages establishing safety standards to guide land use for safe operation of the transportation system, including land uses that support freight movement, and for land uses requiring commodity movement to be given adequate access to transportation facilities. Policies C 4.10 and 4.11 encourage improvement and maintenance of roads that carry significant amounts of freight traffic and provide for off-street loading areas.

Agricultural Element

Agricultural Element Policy 6.1 encourages improvement of the regional transportation system to support the agricultural industry. This would include providing adequate capacity to accommodate increases in truck traffic.

Area Plan Policies Related to Goods Movement

A limited number of Area Plans contain policies related to goods movement. The Area Plan policies would supplement those contained in the General Plan, and are consistent with the 2007 General Plan policies.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Area Plan Policy GMP 2.3 discourages heavy vehicles from using the Laureles Grade.

Greater Salinas Area Plan

The Greater Salinas Area Plan Policy 2.1 establishes a priority for the improvement of Highway 68 including the construction of alternate passing lanes, which would reduce the impacts of trucks on grades and narrow segments. Policy 2.3 identifies improvements to Laureles Grade such as shoulder widening, passing lanes, and paved turn-outs that increase safety for larger vehicles. At the same time, this policy also discourages use of heavy vehicles on Laureles Grade.

Carmel Valley Master Plan

Carmel Valley Master Plan Policy 2.15 supports consideration for a northbound climbing lane on Laureles Grade.

Cachagua Area Plan

The Cachagua Area Plan Policy CACH 2.5 requires projects that generate heavy vehicles to restore and maintain roads to their existing condition.

Agricultural and Winery Corridor Plan (AWCP)

Policy 3.7 requires that access to facilities in the AWCP shall be designed to meet safe sight distance standards as determined by the Monterey County Public Works department, particularly for uses that generate truck traffic.

Significance Determination

Development and land use allowed under the 2007 General Plan would increase traffic volumes on County roads, Regional roads, and regional roads external to the County. This added traffic would both cause roadway segments to exceed the County's LOS standard, and contribute traffic to roadways that exceed the LOS standard without development, and further degrade the performance measure.

The 2007 General Plan and Area Plans establish policies to mitigate or reduce these impacts. These policies encourage alternative modes of travel including public transit, bicycle, and pedestrian modes to reduce the use of automobiles. They encourage compact, mixed-use, and transit-oriented development in developed areas in patterns that have been demonstrated to reduce traffic. In combination, these policies serve to decrease the number of trips by vehicle and decrease the total length of trips, which in turn minimizes degradation of LOS. The policies in the general plan also provide a funding mechanism, through implementation of a countywide traffic impact fee, and coordination with a regional traffic impact fee. These resources are intended to provide funding for transportation improvements.

Despite development contributions to project-specific local impacts (through project-level mitigation), county impacts (through countywide traffic impact fee), and regional impacts (through regional traffic impact fee) there will remain a funding shortfall for the implementation of the financially constrained capital facilities in the Regional Transportation Plan. Implementation of the mitigation listed above in conjunction with the 2007 General Plan policies, and working collaboratively with cities and regional agencies would contribute to the mitigation of roadway LOS impacts. However, even with the adoption of county and regional impact fees, which fund a limited number of transportation facilities, traffic impacts to County and regional roadways will remain significant and unavoidable.

Mitigation Measures

No mitigation is feasible. Mitigation of the LOS impacts described above would require a substantial number of County and Regional roadway widening, and intersection modifications to provide enough capacity to achieve the County's LOS D standard on all impacted segments, some outside of Monterey County. Additionally, mitigation would include substantial increases in public transportation services.

Many of the mitigations for these roadways segments are infeasible due to physical, topographical, and environmental constraints, as well the social and economic impacts related to the acquisition of commercial and residential property, or loss of access, for roadway capacity-enhancing projects. The foremost constraint, however, is funding of transportation facilities. Federal, state and regional funding are limited, and most of these funds are used to maintain the transportation system. The County

and TAMC are planning to implement Traffic Impact Fees to fund improvement projects, but the amount of the fees are limited for affordability and total fee burden reasons.

The County and regional fee programs will continuously be updated, adding additional priority projects to the programs as initial projects are completed, but the rate of project completion will not be able to outpace the rate of development growth.

Significance Conclusion

Implementation of the 2007 General Plan would have a significant and unavoidable impact on County roads, and Regional roads both within and external to Monterey County. The County has developed a list of capital improvements to be included in a countywide traffic impact fee, as described above. In addition, TAMC has adopted a list of capital improvements to be funded by their adopted Regional Traffic Impact Fee. Neither the County nor TAMC projects fully mitigate the impacts of the 2007 General Plan, but provide significant improvement to County and Regional roadway segments beyond existing conditions and Existing plus Project Development to the Year 2030 conditions. Therefore, impacts remain significant and unavoidable.

Air Traffic

Impact TRAN 1-C: Growth in land uses allowed under the 2007 General Plan would increase demand for air travel at the County's four airports or increase development within the approach and departure pattern of airports.

Impact of Development with Policies

The 2007 General Plan increases the allowable amount of development within the County, which would cause an increase in demand for commercial passenger, general aviation, and freight-related air travel. Development of the Agricultural and Winery Corridor Plan (AWCP) will increase the area as a tourist destination, and therefore will contribute to increased commercial and private passenger air travel. Although the increase in air travel related to the AWCP will increase gradually through 2030 as new winery facilities develop over time. However, the General Plan does not require any changes to air traffic patterns.

Further, the 2007 General Plan includes development near airports. Specifically, Policy 2.12 in the Land Use Element allows for the Hwy 68/Monterey Peninsula Airport Affordable Housing Overlay which will increase housing and density in an 85 acre area adjacent to the Monterey

Peninsula Airport. The overlay area is to the south of the airport and not within the approach or departure flight paths of the runways.

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth measures to minimize impacts of air traffic.

Circulation Element

Circulation Element Policies 7.1 through 7.5 promote safe, efficient air facilities. They provide for appropriate land uses around air facilities in order to mitigate noise and safety impacts on land use. The policies also provide for control of the impact of private air facilities on agricultural land use and surrounding areas.

Area Plan Policies

The Area Plans contain policies related to air traffic. The Area Plan policies and mitigations would supplement those contained in the General Plan, consistent with the 2007 General Plan.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Area Plan Policies 2. 8 and 4.2 require that development under the runway approaches of the Monterey Peninsula and Marina Municipal Airports be low intensity and not interfere with airport operations. It encourages adoption of noise and land use compatibility standards.

Cachagua Area Plan

The Cachagua Area Plan Policy 2.3 requires private airstrips to obtain a use permit to ensure that they do not negatively impact neighboring areas or flight paths from existing airports.

Significance Determination

Development of the land uses allowed under the 2007 General Plan by the year 2030 would result in an increase in demand for air travel. Passenger travel in Monterey County peaked in 1978 with about 640,000 passengers annually. Since that time passenger travel has declined to nearly half of its peak (Monterey Airport District, 2008). Without adding additional capacity at airports, the current passenger level could increase to at least 640,000 passengers annually without impacting airport operations (a 96% increase).

Land use growth proposed in the general Plan and specifically the Hwy 68/Monterey Peninsula Airport Affordable Housing Overlay will not be located within airport flight paths, and will not be design in such a way as to

become an incompatible land use (i.e., high rise buildings). No change in airport location is being proposed in the 2007 General Plan. (Less than Significant Impact).

Mitigation Measures

Impacts would be less than significant, therefore no mitigation measures are necessary.

Significance Conclusion

The development of the General Plan would increase the demand for the air travel. The General Plan contains policies to encourage safe operations of air facilities and land uses surrounding the airports that are consistent with airport operations. Airport passenger demand is significantly less than it was in 1978 and therefore can accommodate substantial increases without increasing the capacity of airports. Impacts of the General Plan policies under Existing plus Project Development to the Year 2030 are less than significant.

Roadway Hazards

Impact TRAN 1-D: Growth in land uses allowed under the 2007 General Plan would result in non-standard or hazardous designs or land uses that are incompatible with public facilities and adjoining land uses. (Less Than Significant)

Impact of Development with Policies

The development of the 2007 General Plan would allow the development of land uses that create hazards to various modes of transportation. This impact would include the provision of access to development that does not meet County design standards (such as inadequate sight distance, roadway curvature failing to meet design speed standards, etc.). This impact also includes the development of land uses that generate types of traffic incompatible with surrounding land uses and transportation facilities (such as industrial uses adjacent to, and gaining access from, local residential streets or schools). Incompatible types of traffic include slow-moving farm vehicles using roadways in urban or urbanizing areas.

As Monterey County develops, residential and commercial development may occur adjacent to or within current rural agricultural areas, increasing the conflict between uses and types of traffic.

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth measures to minimize potential impacts of non-standard roadway design or incompatible land uses.

Circulation Element

Circulation Element policies provide for safety of the transportation network by requiring safety standards, providing for protection against incompatible land uses, and designing or expanding new roads to current standards. Policy 1.2 requires development and adoption of a Capital Improvement and Financing Plan (CIFP) and implementing ordinances that identify mechanisms to improve County roadways to meet design standards and improve safety. Policy 2.3 requires the use of safety standards established by transportation-related agencies to guide new development and transportation improvements. Policy 4.2 ensures that new roads and internal circulation roads are constructed to County standards. Policy 4.8 maintains the County's roadway safety programs that identify and improve hazardous or non-standard roadway designs.

Related to compatibility of land uses, Policy 2.2 protects existing and proposed public transportation facilities from the encroachment of incompatible land uses that would create unsafe development access or traffic conditions, or disallows uses that generate incompatible types of traffic from accessing major streets (e.g., farm equipment accessing major arterial roadways). Policy 7.1 prohibits any land use activities that would interfere with safe operations of aircraft, such as multi-story buildings within flight paths. Policies 7.2 and 7.4 ensures that proposed land uses in the vicinity of public airports are compatible with the airport comprehensive land use plan, and Policy 7.5 requires regulation of private airfields so that they do not impact agricultural lands, existing airport operations, public facilities, or neighboring areas. Policy 9.1 requires land uses in the vicinity of harbors to be compatible with commercial and recreational harbor operations.

Agricultural Element

Policy 6.1 encourages and supports improvement of regional transportation systems to support the needs of the agricultural industry (including safety design features).

Safety Element

Safety Element Policy 4.9 requires that roadways be constructed and maintained in accordance with Monterey County Code or the California Fire Code, which establishes minimum clear widths to

accommodate fire fighting apparatus, large freight vehicles, and emergency service providers.

Area Plan Policies

The Area Plans contain a number of policies related to non-standard design or incompatible land uses. The Area Plan policies would supplement those contained in the 2007 General Plan.

Carmel Valley Master Plan

The Carmel Valley Master Plan Policies 2.10 and 2.11encourage improvements to existing roadways, such as shoulder improvements on sharp curves on Esquiline Road. They also provide for channelization and tapers at access points on Carmel Valley Road for safety improvements.

Toro Area Plan

The Toro Area Plan Policy 2.7 limits new direct access points for single family residences along Highway 68 and limits them along other routes in the planning area in order to mitigate the impact of incompatible land use access onto major traffic corridors.

Cachagua Area Plan

The Cachagua Area Plan Policy 2.1 requires the signing and marking of roadways to alert all users to unusual or dangerous conditions.

Agricultural and Winery Corridor Plan

The AWCP contains development standards to ensure new development provides safe transportation facilities in this rural corridor.

The AWCP development standards include a standard for access design that requires access to facilities where the general public is allowed to meet safe sight distance standards.

Significance Determination

Development of the land uses allowed under the 2007 General Plan by the year 2030 would result in non-standard or hazardous designs and incompatible facilities with adjoining land uses. The General Plan provides for policies to prevent or reduce these impacts by requiring roads to be designed to safety standards. These policies require new development to design facilities to County standards. They also provide for road safety programs (signing, marking, and improved sight distance) to improve overall safety. The 2007 General Plan also has policies to limit incompatible land

uses. Therefore, the impact of roadway hazards with implementation the 2007 General Plan is less than significant.

Mitigation Measures

No additional mitigation measures beyond the 2007 General Plan are necessary.

Significance Conclusion

The development under the General Plan would result in non-standard or hazardous transportation facility designs or land uses that are incompatible with public facilities. However, the 2007 General Plan contains policies to ensure that new development provides access and improvements to the county roadway system to meet County standards. It also contains policies to prevent incompatible land uses to avoid transportation conflicts and roadway hazards. Therefore, the impact is less than significant.

Emergency Access

Impact TRAN 1-E: Growth in land uses allowed under the 2007 General Plan would result in inadequate emergency access. (Significant and Unavoidable)

Impact of Development with Policies

The development under the 2007 General Plan would impact the response time for emergency vehicles on roadways projected to exceed the County standard LOS D. This impact would occur in the more developed areas of the County (i.e., North County, Greater Monterey Peninsula, Carmel Valley, and some Community Areas) which experience higher concentrations of roadways operating at LOS E or F.

The development of the Existing plus Project Development to the Year 2030 will cause 114 County and Regional roadway segments to exceed LOS D, which would have an impact on emergency vehicle response time.

2007 General Plan Policies

The 2007 General Plan policies summarized below set forth measures to minimize impacts on emergency vehicles.

The General Plan Land Use Element and Public Services Element support limiting growth outside of areas where infrastructure and services are available.

Circulation Element

The Circulation Element contains policies to identify and mitigate impacts to roadway level of service, as well as establish mechanisms to fund transportation projects to improve level of service. These policies are described under the Roadway Level of Service section above.

Land Use Element

Land Use Element Policy 1.4 focuses urban growth in areas where there are adequate levels of service for emergency response to avoid inadequate response because of lack of emergency provider facilities and long distances. Police 1.19 (Evaluation System) would result in a low ranking, if not a failing score, for new subdivisions in remote areas, since these would not comply with General Plan policies regarding water, sewer, and services. Development on existing lots of record are exempted from this policy and these new homes, if constructed in remote areas, would not be expected to receive services in the same timeframe as other new residential development. The General Plan policies include maximum response times that range from 5-8 minutes in urban areas to as high as 45 minutes in rural areas. Nevertheless, because of existing development and future development on lots of record in more remote areas and highway congestion, emergency response time less than the policy maximums may difficult to achieve.

Safety Element

Safety Element Policies 4.9 and 5.15 require roadways to be constructed according to the fire code, which establishes minimum clear widths to accommodate fire fighting apparatus and emergency service providers, and be designed for tsunami evacuation along developed coastal areas where appropriate. Policy 5.14 considers all public thoroughfares, private roads, and deeded emergency accesses as potential evacuation routes, and identifies “Pre-designated Emergency Evacuation Routes”. Policy 5.15 identifies Tsunami Evacuation Routes as any route in an incorporated or unincorporated area leading inland away from the coastline to higher elevations.

Area Plan Policies

The Area Plans contain policies related to emergency vehicle response. The Area Plan policies and mitigations would supplement those contained in the General Plan, consistent with the 2007 General Plan.

Carmel Valley Master Plan

The Carmel Valley Master Plan Policy 4.4 requires secondary emergency road connections for emergency access to mitigate impact of traffic congestion on emergency response.

Significance Determination

Development of the land uses allowed under the 2007 General Plan under Existing plus Project Development to the Year 2030 would result in inadequate emergency access due to increases in traffic that result in County and Regional roadways exceeding County LOS standards, and creating traffic congestion that slows emergency response time.

The General Plan policies discussed above address transportation related impacts to emergency response due to congestion, and design. However, even with the adoption of county and regional impact fees, and implementation of proposed transportation improvements at the County and Regional level, traffic impacts to County and Regional roadway level of service will remain significant and unavoidable, and thereby cause an impact to emergency response that significant and unavoidable.

Mitigation Measures

As stated in the Roadway Level of Service impacts discussion above, mitigation of LOS impacts would require a substantial number of County and Regional roadway widening and intersection modifications to provide enough capacity to achieve the County's LOS D standard on all impacted segments. Many of the mitigations for these roadways segments are infeasible due to physical, topographical, and environmental constraints, as well the social and economic impacts related to the acquisition of commercial and residential property, or loss of access, for roadway capacity-enhancing projects. The foremost constraint, however, is funding of transportation facilities. The County and TAMC are planning to implement Traffic Impact Fees to fund improvement projects, but the amount of the fees are limited for affordability, and total fee burden. Therefore, no mitigation that improves the LOS on all County and Regional roadways is feasible.

Mitigation Measure TRAN-1E: New Policy C-X.XX on increasing roadway connectivity to enhance emergency access.

C-X.XX: Emergency Response Routes and Street Connectivity Plans. The County shall review Community Area and Rural Center Plans, and new development proposals for roadway connectivity that provides multiple routes for emergency response vehicles. At the time of their update, Community Area and Rural Center Plans shall identify primary and secondary response routes. Secondary response routes shall be required to accommodate through traffic and may be existing roads, or

may be new roads required as part of development proposals. The emergency route and connectivity plans shall be coordinated with the appropriate Fire District.

Significance Conclusion

The development allowed in the 2007 General Plan would generate traffic that would cause County and Regional roadways to exceed the County's LOS D standard, and contribute to roadways that exceed the standard without development, causing traffic congestion that would impact emergency response time. This is a significant and unavoidable impact.

Alternative Transportation

Impact TRAN 1-F: Development allowed under the 2007 General Plan would conflict with adopted policies, plans, or programs supporting alternative transportation or generate pedestrian, bicycle, or transit travel demand that would not be accommodated by current pedestrian facilities, bicycle development plans, or long-range transit plans. (Less than Significant)

Impact of Development with Policies

Development under the 2007 General Plan would be concentrated in Community Areas, Rural Centers, and Affordable Housing Opportunity overlays. The land uses and the design of sites and neighborhoods in these areas would be compatible with alternatives to the automobile (e.g., walking, biking and transit) due to size and residential density.

Bicycling, walking, and transit are less attractive alternatives to the automobile when greater distances are involved. Further, lower density development spread over a larger area is effective to serve by transit than higher density, mixed-use communities. The 2007 General Plan allows for a combination of low density spread development patterns and higher density mixed-use development in central locations. Through the policies established in the General Plan, either type of development would design for, and encourage walking and bicycling, and transit use to the extent transit service is provided. This is a less than significant impact.

2007 General Plan Policies

The 2007 General Plan contains policies to encourage alternate modes of travel by providing transit service, pedestrian and bicycle infrastructure and compact, mixed-use development.

Circulation Element

Many of the policies in the circulation element "encourage" shifts to alternate modes of travel (Policies 2.1, 2.2, 2.5, 3.5, 4.3), but some policies require infrastructure and site design that supports transportation choice. Policy 2.7 requires that new development be located and designed with convenient access and efficient transportation for all intended users, and where possible consider alternative transportation modes. This policy ensures that new development provides multimodal facilities so that walking, bicycling and transit are viable options.

Additional infrastructure related policies include Policy 4.4 which considers abandonment of County roads for public uses of the rights-of-way, such as bikeways, or horseback riding and hiking trails. Policy 4.5 requires that new public local and collector roads be designed to discourage through auto traffic and provide for bicycle and pedestrian traffic within the right-of-way. Policy 4.7 requires, where appropriate and sufficient public right-of-way is available, that bicycle paths shall be separated from major roads and highways and be provided between adjacent communities. Policy 4.9 requires that the County to monitor key County-maintained roadways, intersections, bikeways, and pedestrian facilities to observe and analyze the functioning of these roadways, as well as to identify capacity and safety concerns. This policy is important in ensuring adequate multimodal facilities.

Provision of public transportation service is outside the authority of the County, but the provision of infrastructure and facilities, and transit-supportive land use patterns is established by the County. Policies 6.1, 6.2, 6.5, 6.7, 6.8, and 6.9 provide support and encouragement for public transportation services. Policy 6.3 supports the concentration of new development along major transportation corridors and near incorporated cities to make transit services to these areas more feasible. Policy 6.6 requires transit and bus parking facilities at major hotels, motels, convention centers, other tourist-serving areas and events.

The County's policies support rail transportation with the following. Policy 8.1 makes protection of future rail transportation a high priority. This policy would protect existing railroad right-of-way and support acquisition of railroad corridors for inter-city service. Policy 8.3 supports the planning and implementation of passenger rail, light rail, or bus rapid transit service to urban centers, and Policy 8.4 supports and encourages transit-oriented development around existing and future rail, light rail, or bus rapid transit stations.

Bicycle transportation is supported through the following policies. Policy 10.1 requires the establishment of an integrated system of

bicycle routes for Monterey, developed through a comprehensive bicycle plan coordinated private and public interests and agencies (Policy 10.2). Policy 10.3 requires consideration of bike routes in the construction or expansion of roadways within major transportation corridors. Policies 10.4 through 10.7 support bicycle transportation through multimodal and inter-modal integration, and for visitor serving areas.

Land Use Element

Land Use Element Policies 1.2 and 1.3, encourage managing growth in unincorporated areas and discouraging scattered development to minimize the duration of trips, which also supports alternative modes of transportation. Policies 1.4 and 1.7 requires development to occur only when adequate transportation facilities exist and to encourage phasing and clustering of development to provide for adequate long-range planning of infrastructure, including pedestrian, bicycle and transit facilities. Policies 2.15, 2.17, and 2.21 encourage directing growth to urban and community areas, which better supports transit use. These policies also encourage mixed-use development, which generates fewer vehicle trips by clustering uses together.

Open Space and Conservation Element

Open Space Element Policies10.2 and 10.5 encourages alternative modes of travel and encourage mixed land uses to reduce vehicular travel and minimize negative impact on LOS.

Area Plan Policies

The Area Plans contain policies related to alternative modes of travel and associated supportive land uses. The Area Plan policies and mitigations would supplement those contained in the General Plan, consistent with the 2007 General Plan.

Greater Monterey Master Plan

The Greater Monterey Master Plan Policies 2.7 and 2.9 encourage new development to incorporate designs and location for transit and bicycle and pedestrian connections and for new or expanded arterials or highways to accommodate separated bicycle paths.

Carmel Valley Master Plan

Carmel Valley Master Plan policies 2.1 through 2.5, and 2.15 promote alternative modes of transportation by requiring new development and new facilities to provide for transit stops, bicycle and pedestrian infrastructure.

Toro Area Plan

The Toro Area Plan policies 2.3, 2.4, 2.6, 2.9, and 2.10 provide for additional transit, bicycle and pedestrian infrastructure along new facilities and in new development. Policy 2.10 encourages a study to determine how to increase access to public transit in specific areas.

Cachagua Area Plan

The Cachagua Area Plan policy 2.1 promotes the safety of bicyclists and pedestrians by providing appropriate paving markings.

Significance Determination

Implementation of the policies in the General Plan and Area Plans for development of the land uses allowed under the Existing plus Project Development to the year 2030 would increase pedestrian, bicycle and transit-supportive facilities by both requiring and encouraging the construction of such facilities and land use patterns in new development. These policies provide support for, and do not conflict with, alternative modes of transportation. The transit-supportive land uses identified in the general Plan are consistent with MST's objective to provide transit-oriented development (Designing for Transit: A Manual for Integrating Public Transit and Land Use in Monterey County, MST, 2006).

The land uses allowed under the General Plan, if consistent with policy, would increase the need for transit service with concentrations of development in existing transit-served corridors, community areas, and near incorporated cities. The transit-supportive The increase in demand for transit service is consistent with MST's strategic goals of increasing transit ridership, expanding service, and introducing new services such as BRT in major corridors (Peninsula Area Service Study, 2006 and Business Plan and Short Range Transit Plan, FY 2008 through 2008). Therefore, this impact is less than significant.

Mitigation Measures

No mitigation measures are necessary.

Significance Conclusion

The policies contained in the General Plan provide both requirements and encouragement of alternative mode infrastructure and facilities, and promote transit-support land use patterns. These polices support and do not conflict with existing facilities, policies, plans and programs. The development allowed under the General Plan will generate demand for pedestrian and bicycle facilities, and demand for transit services. These demands can be accommodated by ensuring development conforms to County policies and

design standards, and are consistent with the goals and strategies of MST, the County's transit service provider. This is a less than significant impact.

Year 2030 Cumulative plus Project

Year 2030 Cumulative Conditions represent forecast year 2030 conditions with implementation of the 2007 General Plan development through 2030 plus development of incorporated Cities through 2030. Cumulative development also includes forecasts of development through the year 2030 in Santa Cruz, San Benito and portions of Santa Clara counties. The transportation network in this scenario includes the TAMC Regional Traffic Impact Fee Program projects and proposed County improvement projects described earlier.

This scenario identifies the impacts of development in unincorporated areas of the County cumulative with development in incorporated areas and adjacent counties by identifying changes in roadway level of service. This analysis of the 2007 General Plan is compared to No Project conditions under the 1982 General Plan.

Because there is no version of the AMBAG model that represents the year 2030 under the 1982 General Plan, the Project is compared to the No Project scenario by comparing the amount of housing, population and employment allowed under each scenario, and indicating whether the impacts of the 2007 General Plan would be greater than, less than, or equal to impacts under the 1982 General Plan.

Project-Specific Impacts of the Development under 2030 Cumulative plus Project Conditions

Impact TRAN-2A: Development allowed under the 2007 General Plan cumulatively with other development to the year 2030 would cause project-specific impacts on County roadways which would cause roadways to fall below the acceptable LOS standard D. (Less Than Significant Impact).

Impact of Development with Policies

Project-specific impacts of new development are described in Impact TRAN-1A. These are localized impacts that affect the immediate surrounding transportation system, including access and circulation necessary for the development to function properly and safely. Some project-specific impacts are exclusively attributable to the development such as access connections between the development site and public roadway system. Other project-specific impacts such as impacts to the public roadway system in the immediate vicinity of the development site are cumulative with other development in the area.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Existing plus Project Buildout scenario.

Significance Determination

Project-specific impacts of new development will continue to occur through buildout of the General Plan. As long as General Plan policies remain in effect, new development will be required to prepare a project-level traffic study, or project-level Environmental Impact Report. Impacts to roadway LOS or project access would be identified in these studies and development would be fully responsible for the implementation of mitigation measures or would be responsible for its fair-share of the mitigation depending on the extent of the impact and the development's contribution to the impact along with other cumulative development. If a roadway already falls below the County's LOS standard, then the development is required to mitigate its impact so that the measure of performance (e.g., volume to capacity ratio, peak hour average delay, etc.) of the roadway does not degrade beyond the level without the development. This is a less than significant impact.

Mitigation Measures

Impacts are less than significant, therefore no mitigation is necessary.

Significance Conclusion

Implementation of the 2007 General Plan consistent with policies related to project-specific localized impacts (Policy C-1.4, new development is required to mitigate project-specific local impacts to maintain the County's LOS standard and to provide adequate access and circulation facilities. Policy C-1.3 restricts new development or requires the phasing of new development so that it is concurrent with transportation improvements) would have a less than significant impact and no mitigation is required.

County and Regional Roadway Level of Service Impacts (2030 Cumulative plus Project)

Impact TRAN-2B: Development of the land uses allowed under the 2007 General Plan cumulatively with development in incorporated cities and in adjacent counties would create *traffic increases on* County and Regional roadways which would cause the LOS to exceed the LOS D standard, or contribute traffic to County and Regional roads that exceed the LOS standard without development. (Significant and unavoidable impact)

Impact of Development with Policies

The LOS on study area roadways for the 2030 Cumulative plus Project scenario is illustrated graphically in Exhibit 4.6.8. A detailed analysis of roadway level of service by segment is included in the Appendix.

Table 4.6-16 shows the roadway segments operating at deficient level of service under this scenario and compares the segments to their LOS under existing conditions. As shown in Table 4.6-16, there are 5 segments that operate at LOS E and 29 segments that operate at LOS F in this scenario. There are 5 segments that operate at LOS D in Carmel Valley Area Plan where the standard has been established as a LOS C. In comparison, under existing conditions, 17 of the segments in Table 4.6-17 currently operate at LOS E or F. The development in the County up to the year 2030, cumulatively with other development, causes an additional 17 roadway segments to exceed the county's LOS threshold. In the CVMP area, the development in the County up to the year 2030, cumulatively with other development, causes an additional two roadway segments to exceed the county's LOS threshold as defined in the CVMP. Further discussion of impacts of the 2007 General Plan within the Carmel Valley Plan Area are discussed in the next section.

Table 4.6-17. County Roadway Segments Operating at LOS E or F under 2030 Cumulative plus Project Conditions Roadway Segment

		Existing Conditions (2008)		Cumulative + Project 2030	
		V/C Ratio	LOS	V/C Ratio	LOS
Roadway Segments Operating at LOS F in the 2030 Cumulative plus Project Conditions Scenario					
County Road G12 (Elkhorn Rd)	Salinas Rd to Hall Rd	1.339	F	1.155	F
County Road G12 (Hall Rd)	Elkhorn Rd to San Miguel Canyon Rd	1.879	F	2.575	F
County Road G12 (San Miguel Canyon	Hall Rd to Strawberry Rd	1.122	F	1.252	F

		Existing Conditions (2008)		Cumulative + Project 2030	
		V/C Ratio	LOS	V/C Ratio	LOS
Rd)					
County Road G12 (San Miguel Canyon Rd)	Strawberry Rd to Castroville Blvd	1.485	F	1.460	F
County Road G12(San Miguel Canyon Rd)	Castroville Blvd to US-101	1.486	F	1.362	F
County Road G14 (Jolon Rd/Interlake Rd)	US-101 to San Lucas Rd	0.582	D	1.075	F
Abbott St	SH 101 to Salinas City Line	0.896	E	1.350	F
Blanco Rd	Reservation Rd to Cooper Rd	2.033	F	2.667	F
Blanco Rd	Cooper Rd to Armstrong Rd	2.146	F	2.500	F
Blanco Rd	Armstrong Rd to Davis Rd	2.292	F	2.650	F
Carpenter St	Serra Ave to SR-1	1.354	F	1.383	F
Carpenteria Rd	San Juan Rd to County Border	0.462	C	1.079	F
Corral De Tierra	SH-68 to Robley Rd	0.682	D	1.010	F
Crazy Horse Canyon Rd	San Juan Grade Rd to US-101	0.449	C	1.077	F
Grant St	Payson Rd to Scott St	0.505	D	2.146	F
Grant St	Scott St to Clay St	0.547	D	2.323	F
Harris Rd	Spreckels Blvd to Abbott St	0.844	E	1.490	F
Hebert Rd	San Juan Grade Rd to Old Stage Rd	0.443	D	1.142	F
Ocean Ave	Carmel City Line to SR-1	1.229	F	1.375	F
Old Stage Rd	Hebert Rd to Natividad Rd	0.488	D	1.133	F
Old Stage Rd	Natividad Rd to Williams Rd	0.163	C	1.062	F
Pine Canyon Rd (King City)	Merrit St to Jolon Rd	0.583	D	1.615	F
Porter Dr	Salinas Rd to San Juan Rd	0.967	E	1.425	F
Porter Dr	San Juan Rd to Santa Cruz County Line	1.423	F	2.558	F
Prunedale North Rd	SR-156 to San Miguel Canyon	0.458	D	1.406	F
Rio Rd	Carmel City Line to SR-1	1.161	F	1.719	F
Russell Rd	SR-101 to San Juan Grade	0.661	D	1.302	F

		Existing Conditions (2008)		Cumulative + Project 2030	
		V/C Ratio	LOS	V/C Ratio	LOS
	Rd				
San Juan Grade Rd	Salinas City Line to Russell Rd	1.015	F	1.042	F
San Juan Grade Rd	Russell Rd to Rogge Rd	0.747	D	1.058	F
Roadway Segments Operating at LOS E in the 2030 Cumulative plus Project Conditions Scenario					
County Road G12 (Salinas)	Railroad Ave to Elkhorn Rd	0.584	D	0.964	E
Carpenter St	Carmel City Line to Serra Ave	0.828	E	0.906	E
Rogge Rd	San Juan Grade Rd to Natividad Rd	0.661	D	0.979	E
Salinas Rd	Fruitland Ave to Elkhorn Rd	0.499	C	0.967	E
San Miguel Canyon Rd	Tarpey Rd to Hall Rd	0.525	D	0.983	E
Roadway Segments Operating at Deficient LOS D in the 2030 Cumulative plus Project Conditions Scenario					
County Road G20 (Laureles Grade Rd)	Robley Rd to Carmel Valley Rd	0.582	D	0.788	D
Carmel Rancho Blvd	Carmel Valley Blvd to Carmel Rancho Ln	0.619	D	0.679	D
Carmel Rancho Blvd	Carmel Rancho Ln to Rio Rd	0.402	C	0.479	D
Rio Rd	SR-1 to Carmel Rancho Blvd	0.575	D	0.625	D

Source: Kimley-Horn and Associates, Inc.

Impact of Development in the Carmel Valley Area Plan

As described earlier in this chapter, the roadway level of service analysis for the Carmel Valley Master Plan (CVMP) area is based on peak hour (AM and PM peak) information. The reason that CVMP roadway facilities are analyzed in the peak hour as opposed to the daily analysis used for the rest of the County is because it is a more project-specific and accurate method of analysis, the CVMP policies establish LOS standards based on peak hour (CV 2.18(d)), and a recent peak hour draft traffic analysis of the CVMP and the Carmel Valley Transportation Improvement Program was available (CVMP Traffic Study, July 2007). At the project-specific or small planning area level of analysis, a peak hour operational analysis should be used to

overcome the inaccuracies and impact over-estimation characteristic of daily V/C Ratio analysis.

The Area Plan for Carmel Valley specifies an acceptable LOS of "C" or "D" for Carmel Valley Road depending on the roadway segment, as opposed to a LOS "C" that is proposed to be the acceptable level for other Carmel Valley roadways and LOS D in the remainder of the unincorporated County. Integration of this analysis into the 2007 General Plan EIR allows for consistency between documents. For Carmel Valley Road, the following LOS standards apply to its segments:

Segment 1: East of Holman Road (LOS C)

Segment 2: Holman Road to Esquiline Road (LOS C)

Segment 3: Esquiline Road to Ford Road (LOS D)

Segment 4: Ford Road to Laureles Grade (LOS D)

Segment 5: Laureles Grade to Robinson Canyon Road (LOS D)

Segment 6: Robinson Canyon Road to Schulte Road (LOS D)

Segment 7: Schulte Road to Rancho San Carlos Road (LOS D)

Segment 8: Rancho San Carlos Road to Rio Road (LOS C)

Segment 9: Rio Road to Carmel Rancho Boulevard (LOS C)

Segment 10: Carmel Rancho Boulevard to SR1 (LOS C)

Table 4.6-18 presents the peak hour level of service for roadways within the CVMP based on the analyses prepared for the traffic studies referenced above. The modeling for these traffic studies assumed a higher amount of development in the CVMP area in 2030 than the analysis of the rest of the County under the 2030 Cumulative plus Project scenario. The CVMP analysis assumes development of 1,188 housing units between 2000 and 2030, more units than assumed in the General Plan estimates to the year 2030. Although analyzed in Table 4.6-17 Highway 1 (SR 1) is not a part of the CVMP, but a regional road that connects to the CVMP and subject to the County's standard of LOS D. Three segments of Carmel Valley Road exceed their LOS D standard under this scenario.

The General Plan daily analysis in Table 4.6-16 shows three roads exceeding the CVMP LOS standard of "C", County Road G20 (Laureles Grade), Carmel Ranch Boulevard, and Rio Road. The General Plan analysis indicates that these roads are significantly impacted.

Table 4.6-18. Carmel Valley Roadway Level of Service under 2030 Cumulative plus Project Conditions

Roadway	Direction	Level of Service	
		AM Peak	PM Peak
Highway (SR) 1			
between Rio Rd & Carmel Valley Rd	NB	B	B
	SB	E	E
between Carmel Valley Rd & Ocean Ave	NB	C	C
	SB	F	F
between Ocean Ave & Carpenter St	NB	D	D
	SB	C	C
Carmel Valley Road			
East of Holman (Standard LOS C)	BOTH	C	C
Holman Road to Esquiline Road (Standard LOS C)	BOTH	C	C
Esquiline Road to Ford Road (Standard LOS D)	BOTH	D	D
Ford Road to Laureles Grade(Standard LOS D)	BOTH	D	D
Laureles Grade to Robinson Canyon Road(Standard LOS D)	BOTH	E	E
Robinson Canyon Road to Schulte Road (Standard LOS D)	BOTH	E	E
Schulte Road to Rancho San Carlos Road (Standard LOS D)	BOTH	E	E
Rancho San Carlos Road to Rio Road (Standard LOS C)	EB	A	B
	WB	B	B
Rio Road to Carmel Rancho Boulevard (Standard LOS C)	EB	B	C
	WB	C	C
Carmel Rancho Boulevard to Highway 1 (Standard LOS C)	EB	B	B
	WB	C	B

Source: Kimley-Horn & Associates, Inc. 2008 and DKS Associates, 2007.

Table 4.6-19 presents the Regional roadway segments operating at LOS E or LOS F under 2030 Cumulative plus Project conditions and compares the segments to their LOS under existing conditions. Exhibit 4.6.8 presents the segment LOS graphically. A detailed table showing the volume, the volume to capacity ratio and the resulting LOS for each Regional roadway segment is included in the Appendix.

There are six regional roadway segments that operate at LOS E and 64 segments that operate at LOS F under this scenario. Under existing conditions, 47 of these Regional roadway segments operate at LOS E or F, so development in the County up to the year 2030, cumulatively with other development, causes an additional 23 roadway segments to exceed the County's LOS threshold.

Table 4.6-19. Regional Roadway Segments Operating at LOS E or F under 2030 Cumulative plus Project Conditions

		Existing Conditions (2008)		2030 Cumulative plus Project Conditions	
Roadway Segment		V/C Ratio	LOS	V/C Ratio	LOS
Roadway Segments Operating at LOS F in the 2030 Cumulative plus Project Conditions Scenario					
US Highway 101	County Border to Crazy Horse Canyon Rd	1.044	F	1.067	F
US Highway 101	Crazy Horse Canyon Rd to San Miguel Canyon Rd	0.989	E	1.011	F
US Highway 101	San Miguel Canyon Rd to SR-156	1.441	F	1.657	F
US Highway 101	SR-156 to Pesante Rd	1.106	F	1.763	F
US Highway 101	Pesante Rd to Espinosa Rd	1.106	F	1.759	F
US Highway 101	Espinosa Rd to E Boronda Rd	1.098	F	1.503	F
US Highway 101	E Boronda Rd to W Laurel Dr	1.143	F	1.512	F
US Highway 101	W Laurel Dr to N Main St	1.107	F	1.702	F
US Highway 101	N Main St to E Market St	1.172	F	1.583	F
US Highway 101	E Market St to John St	1.114	F	1.566	F
US Highway 101	John St to S Sanborn Rd	0.897	D	1.344	F
US Highway 101	S Sanborn Rd to Airport Blvd	0.745	C	1.120	F
US Highway 101	Airport Blvd to Abbott St	0.615	C	1.190	F
US Highway 101	Chualar Rd to Old Stage Rd	0.654	D	1.312	F
US Highway 101	Old Stage Rd to 5th St	0.646	C	1.357	F
US Highway 101	5th St to S Alta St	0.600	C	1.224	F
US Highway 101	S Alta St to Camphora Rd	0.631	C	1.254	F
US Highway 101	Camphora Rd to Moranda Rd	0.623	C	1.259	F
US Highway 101	Moranda Rd to Front St	0.646	C	1.212	F
US Highway 101	Front St to Arroyo Seco Rd	0.662	C	1.206	F
US Highway 101	Arroyo Seco Rd to El Camino Real	0.592	C	1.069	F

Roadway Segment		Existing Conditions (2008) V/C Ratio	LOS	2030 Cumulative plus Project Conditions V/C Ratio	LOS
SR-1	County Border to Salinas Rd	0.769	D	1.275	F
SR-1	Salinas Rd to Struve Rd	1.546	F	2.137	F
SR-1	Struve Rd to Dolan Rd	1.667	F	2.309	F
SR-1	Dolan Rd to Molera Rd	1.496	F	2.108	F
SR-1	Molera Rd to SR-183	1.426	F	1.96	F
SR-1	Canyon del Rey Blvd to Del Monte Ave	1.071	F	1.155	F
SR-1	N Fremont St to Aguajito Rd	1.411	F	1.443	F
SR-68 (Holman Highway)	Forest Ave to 17 Mile Dr	1.448	F	1.681	F
SR-68 (Holman Highway)	17 Mile Dr to Skyline Forest Dr	1.638	F	1.908	F
SR-68 (Holman Highway)	Skyline Forest Dr to CHOMP Dwy	1.638	F	1.908	F
SR-68 (Monterey Salinas Highway)	SR-1 to Olmsted Rd	1.422	F	1.529	F
SR-68 (Monterey Salinas Highway)	Olmsted Rd to Canyon del Rey Blvd	1.422	F	1.575	F
SR-68 (Monterey Salinas Highway)	Canyon del Rey Blvd to Bit Rd	1.304	F	1.509	F
SR-68 (Monterey Salinas Highway)	Bit Rd to Laureles Grade Rd	1.304	F	1.515	F
SR-68 (Monterey Salinas Highway)	Laureles Grade Rd to Corral de Tierra	1.525	F	1.822	F
SR-68 (Monterey Salinas Highway)	Spreckels Blvd to E Blanco Rd	0.811	B	1.026	F
SR-146 (Front St)	US-101 to East St	0.507	D	1.048	F
SR-146 (East St)	Front St to Metz Rd	0.507	D	1.041	F
SR-183 (Castroville Rd)	Blackie Rd to Espinosa Rd	1.074	F	1.577	F
SR-183 (Castroville Rd)	Espinosa Rd to Cooper Rd	1.012	F	1.509	F
SR-218 (Canyon del Rey Blvd)	SR-1 to Del Monte Blvd	0.739	D	1.052	F
SR-218 (Canyon del Rey Blvd)	Fremont Blvd to Carlton Dr	1.099	F	1.295	F
SR-218 (Canyon del Rey Blvd)	Carlton Dr to SR-68	1.099	F	1.336	F
Foam St	Prescott Ave to Drake Ave	1.156	F	1.775	F
Foam St	Drake Ave to Lighthouse Ave	1.277	F	1.688	F
Lighthouse Ave	David Ave to Prescott Ave	1.022	F	1.003	F
Lighthouse Ave	Prescott Ave to Private Bolio Rd	1.637	F	1.785	F
Lighthouse Ave	Private Bolio Rd to Pacific St	1.270	F	1.252	F

Roadway Segment		Existing Conditions (2008) V/C Ratio	LOS	2030 Cumulative plus Project Conditions V/C Ratio	LOS
Lighthouse Ave	Pacific St to Washington St	1.124	F	1.126	F
Del Monte Ave	Washington St to Camino Aguajito	1.314	F	1.162	F
Del Monte Ave	Camino Aguajito to Casa Verde Wy	1.313	F	1.33	F
Del Monte Ave	Casa Verde Wy to SR-1	1.443	F	1.845	F
Fremont St	Abrego St to Camino Aguajito	1.065	F	1.168	F
Munras Ave/Abrego St	Soledad Dr to Via Zaragoza	1.226	F	1.425	F
Del Monte Blvd	SR-1 to Canyon del Rey Blvd	1.039	F	1.243	F
Del Monte Blvd	Canyon del Rey Blvd to Broadway Ave	1.058	F	1.136	F
Del Monte Blvd	SR-1 to Reindollar Ave	1.081	F	1.443	F
Del Monte Blvd	Reindollar Ave to Reservation Rd	1.929	F	2.498	F
N Fremont St	Casa Verde Wy to SR-218	0.971	E	1.058	F
E Boronda Rd	US-101 to N Main St	0.923	D	1.711	F
John St	Abbott St to US-101	1.069	F	1.071	F
Davis Rd	W Laurel Dr to SR-183	1.057	F	1.061	F
Blanco Rd	S Davis Rd to W Alisal St	0.698	D	1.019	F
Roadway Segments Operating at LOS E in the 2030 Cumulative plus Project Conditions Scenario					
US Highway 101	El Camino Real to Oak Ave	0.545	C	0.888	E
SR-1	Aguajito Rd to Munras Ave	0.854	D	0.916	E
SR-1	Holman Hwy to Carpenter St	0.890	D	0.991	E
SR-218 (Canyon del Rey Blvd)	Del Monte Blvd to Fremont Blvd	0.708	D	0.968	E
Fremont Blvd	N Del Monte Blvd to SR-1	0.854	D	0.997	E
Sanborn Rd	US-101 to Abbott St	0.983	E	0.961	E

Source: Kimley-Horn and Associates, Inc.

Table 4.6-20 compares existing and 2030 Cumulative plus Project roadway LOS on Regional roadways external to Monterey County. Traffic generated by the land uses allowed under the 2007 General Plan will produce inter-county travel between housing and jobs in Santa Cruz, San Benito, and Santa

Clara counties, and to a lesser extent San Luis Obispo County. With cumulative development in adjacent counties increases the demand for this inter-county travel. Development allowed under the General Plan, cumulatively with development in incorporated cities in Monterey County and development in adjacent counties, causes nearly every roadway segment to experience an increase in the volume to capacity ratio, and causes four segments to change from LOS D or better to a LOS E or F.

Table 4.6-20. Roadway Level of Service of Facilities External to Monterey County under 2030 Cumulative plus Project Conditions

		Existing Conditions (2008)		2030 Cumulative plus Project Conditions	
Roadway Segment		V/C Ratio	LOS	V/C Ratio	LOS
Santa Clara County					
US Highway 101	Cochrane Rd to E Dunne Ave	1.139	F	2.076	F
US Highway 101	Masten Ave to Leavesley Rd/SR-152 West	0.989	E	1.447	F
US Highway 101	Monterey Rd to SR-25	1.071	F	1.669	F
SR-152	SR-156 to Merced County	0.630	C	1.029	F
Santa Cruz County					
SR-1	Soquel Ave to 41st St	1.368	F	1.560	F
SR-1	Airport Blvd to SR-152	0.876	D	1.297	F
SR-1	Harkings Slough Rd to SR-129	0.608	C	1.042	F
SR-1	SR-129 to Monterey County	0.492	B	0.815	D
SR-17	Santa Clara County to Granite Creek Rd	0.958	E	0.849	D
SR-129 (Riverside Rd)	Lakeview Rd to Carlton Rd	0.847	D	1.190	F
San Benito County					
US Highway 101	Santa Clara County to SR-129	0.912	E	1.282	F
SR-25 (Bolsa Rd)	Santa Clara County to SR-156	1.196	F	1.883	F
SR-156	Salinas Rd to Union Rd	1.706	F	1.785	F
San Luis Obispo County					
US Highway 101	Monterey County to San Miguel Ave	0.300	A	0.512	B

Source: Kimley-Horn and Associates, Inc.

Impact of Goods Movement on Roadway Level of Service

As described earlier, the county's current truck traffic generation is expected to increase from 12,600 truck trips per day (2006) to 18,600 in 2030. This is a cumulative projection, not just trucks generated by land uses in unincorporated Monterey County. This increase in freight movement is not significant enough to cause widespread capacity-related impacts, but will contribute large vehicle traffic to roadways and highways that are currently, or are projected to fall below the County's acceptable LOS standard and may cause the localized impacts on heavily traveled freight routes (e.g., Highways 1, 101, 156, and 183) and within industrialized areas where truck traffic originates see Impact TRAN-1A).

2007 General Plan Policies

The 2007 General Plan policies establish measures to minimize adverse impacts of roadway level of service impacts of development both individually and cumulatively. The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Year 2030 Cumulative plus Project scenario.

Significance Determination

Development and land use allowed under the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would increase traffic volumes on County roads, Regional roads, and regional roads external to the County. This added traffic would both cause roadway segments to exceed the County's LOS standard, and contribute traffic to roadways that exceed the LOS standard without development, and further degrade the performance measure. Within the CVMP, three segments of Carmel Valley Road are projected to exceed LOS standards, but mitigation measures are proposed in the CVMP Traffic study to improve these impacts to less than significant.

Despite development contributions to county impacts (through countywide traffic impact fee), and regional impacts (through regional traffic impact fee) there will remain a funding shortfall for the improvement of County and Regional roads to achieve the County's LOS standard. Therefore this impact remains significant and unavoidable.

Mitigation Measures

Mitigation of the impacts described above to achieve a LOS D include:

- Widening County and Regional roadway from existing 2-lane facilities to4, 6, or 8-lanes facilities;
- Expand existing intersections to include additional through and turning lanes;

- Install traffic signals;
- Grade-separate intersections of the junction between major streets;
- Widen state highway to accommodate additional travel lanes, provide shoulders, and auxiliary lanes between on and off-ramps; and
- Increase public transportation services by expanding MST's fleet, expand fixed-route services, increase headways, provide park and ride facilities, and implement new services including Bus Rapid Transit, and inter-city rail service.

Many of the mitigations for roadways segments are likely infeasible due to physical, topographical, and environmental constraints, as well the social and economic impacts related to the acquisition of commercial and residential property, or loss of access, and lack of community consensus for roadway capacity-enhancing projects. This construction would result in impacts to other resources, such as biological resources, air quality, noise, aesthetics and agricultural lands. The foremost constraint, however, is funding of transportation facilities. Federal, state and regional funding are limited, and most of these funds are used to maintain the transportation system. The County and TAMC are planning to implement Traffic Impact Fees to fund improvement projects, but the amount of the fees are limited for affordability and total fee burden reasons. Further, another source of funding, voter initiatives to increase sales tax to fund transportation projects, have failed recently, but may be an option in the future.

The County and regional fee programs will continuously be updated, adding additional priority projects to the programs as initial projects are completed, but the rate of project completion will not be able to outpace the rate of development growth.

The following mitigation measures are recommended for implementation by the County to achieve LOS standards within the CVMP area.

Mitigation Measure TRAN-2B: Revise policies in the Carmel Valley Master Plan as follows:

Policy CV-2.10

The following are policies regarding improvements to specific portions of Carmel Valley Road:

a) Via Petra to Robinson Canyon Road

Every effort should be made to preserve its rural character by maintaining it as a 2-lane road with paved shoulders, passing lanes and left turn channelizations at intersections where warranted.

b) Robinson Canyon Road to Laureles Grade

Every effort should be made to preserve its rural character by maintaining it as a 2-lane road with paved shoulders, passing lanes and left turn channelizations at intersections where warranted.

c) Carmel Valley Road/Laureles Grade

A grade separation should be constructed at this location instead of a traffic signal. The grade separation needs to be constructed in a manner that minimizes impacts to the rural character of the road. An interim improvement of an all-way stop or stop signal is allowable during the period necessary to secure funding for the grade separation.

d) Laureles Grade to Ford Road

Shoulder improvements and widening should be undertaken here and extended to Pilot Road, and include left turn channelization at intersections as warranted.

e) East of Esquiline Road

Shoulder improvements should be undertaken at the sharper curves. Curves should be examined for spot realignment needs.

f) Laureles Grade improvements

Improvements to Laureles Grade should consist of the construction of shoulder widening, spot realignments, passing lanes and/or paved turn-outs. Heavy vehicles should be discouraged from using this route.

Policy CV-2.12:

To accommodate existing and future traffic, the following road improvements are recommended:

Add a northbound climbing lane between Rio Road and Carmel Valley Road:

a) Laureles Grade - undertake shoulder improvements, widening and spot realignment;
b) Carmel Valley Road, Robinson Canyon Road to Ford Road - add left turn channelization at all intersections. Shoulder improvements should be undertaken.

Policy CV-2.18 :

To implement traffic standards to provide adequate streets and highways in Carmel Valley, the County shall conduct and implement the following:

a) Twice yearly monitoring by Public Works (in June and October) of peak hour traffic at the following 12 locations:

Carmel Valley Road

1. East of Holman Road
2. Holman Road to Esquiline Road
3. Esquiline Road to Ford Road
4. Ford Road to Laureles Grade
5. Laureles Grade to Robinson Canyon Road
6. Robinson Canyon Road to Schulte Road
7. Schulte Road to Rancho San Carlos Road
8. Rancho San Carlos Road to Rio Road
9. Rio Road to Carmel Rancho Boulevard
10. Carmel Rancho Boulevard to SR1

Other Locations

11. Carmel Rancho Boulevard between Carmel Valley Road and Rio Road
12. Rio Road between its eastern terminus and SR1

b) A yearly evaluation report (December) shall be prepared jointly by the Public Works and Planning Departments and shall evaluate the peak-hour level of service (LOS) for these 12 locations to indicate segments approaching a traffic volume which would lower levels of service below the LOS standards established below under CV 2-18(d).

c) Public hearings shall be held in January immediately following a December report in (b) above in which only 100 or less peak hour trips remain before an unacceptable level of service (as defined by CV 2-18(d)) would be reached for any of the 12 segments described above.

d) The traffic LOS standards (measured for peak hour conditions) for the CVMP Area shall be as follows:

1. Signalized Intersections – LOS of "C" is the acceptable condition.
2. Unsignalized Intersections – LOS of "F" or meeting of any traffic signal warrant are defined as unacceptable conditions
3. Carmel Valley Road Segment Operations:
   a. LOS of "C" for Segments 1, 2, 8, 9, and 10 is an acceptable condition;
   b. LOS of "D" for Segments 3, 4, 5, 6, and 7 is an acceptable condition.

During review of development applications which require a discretionary permit, if traffic analysis of the proposed project indicates that the project would result in traffic conditions that would exceed the standards

described above in CV 2-18(d) after the analysis takes into consideration the Carmel Valley Traffic Improvement Program to be funded by the Carmel Valley Road Traffic Mitigation Fee, then approval of the project shall be conditioned on the prior (e.g., prior to project-generated traffic) construction of additional roadway improvements OR an Environmental Impact Report shall be prepared for the project. Such additional roadway improvements must be sufficient, when combined with the projects programmed in the Carmel Valley Traffic Improvement Program, to allow County to find that the affected roadway segments or intersections would meet the acceptable standard upon completion of the programmed plus additional improvements. This policy does not apply to the first single-family residence on a legal lot of record.

Policy CV-2.19:

Carmel Valley Traffic Improvement Program (CVTIP)

a) The CVTIP shall include the following projects (unless a subsequent traffic analysis identifies that different projects are necessary to maintain the LOS standards in Policy CV-2.18(d):

    1. Left-turn channelization on Carmel Valley Road west of Ford Road;
    2. Shoulder widening on Carmel Valley Road between Laureles Grade and Ford Road;
    3. Paved turnouts, new signage, shoulder improvements, and spot realignments on Laureles Grade;
    4. Grade separation at Laureles Grade and Carmel Valley Road (an interim improvement of an all-way stop or stop signal is allowable during the period necessary to secure funding for the grade separation);
    5. Sight Distance Improvement at Dorris Road;
    6. Passing lanes in front of the proposed September Ranch development;
    7. Passing lanes opposite Garland Park;
    8. Climbing Lane on Laureles Grade;
    9. Upgrade all new road improvements within Carmel Valley Road Corridor to Class 2 bike lanes;
    10. Passing lane (1/4 mile) between Schulte Road and Robinson Canyon Road; and
    11. Passing lane (1/4 mile) between Rancho San Carlos Rd and Schulte Road.

b) The County shall adopt an updated fee program to fund the CVTIP.

c) All projects within the CVMP area and within the "Expanded Area" that contribute to traffic within the CVMP area shall contribute fair-

share traffic impact fees to fund necessary improvements identified in the CVTIP, as updated at the time of building permit issuance.

d) Where conditions are projected to approach unacceptable conditions (as defined by the monitoring and standards described above under CV 2-18(d)), the CVTIP shall be updated to plan for and fund adequate improvements to maintain acceptable conditions.

Significance Conclusion

With buildout of the 2007 General Plan, and implementation of mitigation measures determined to be feasible, there would remain significant and unavoidable impacts on County roads, and Regional roads both within and external to Monterey County.

A traffic study of the CVMP has identified impacts and mitigation measures for Carmel Valley Road (described above). These mitigation measures result in impacts to Carmel Valley Road being less than significant except for the segment of Carmel Valley Road in the Carmel Valley Village where the conditions will drop from LOS C (the current standard) to LOS D (the proposed standard) due to the lack of feasible mitigation consistent with the rural character of Carmel Valley to maintain the higher standard.

A traffic study (Kimley-Horn 2008) of SR-1 operations between Rio Road and Ocean Blvd has identified significant existing and cumulative impacts that can only be fully mitigated with widening to 4-lanes along this segment. As this is mostly an existing problem, there are limitations on the use of new development fees to pay to correct an existing problem. Neither TAMC nor Caltrans is currently planning to fund SR-1 widening at this location. Further, there is no community consensus to complete a widening project. Thus, widening of this segment is considered infeasible due to the lack of available funding and a lack of community support and thus impacts to SR-1 between Rio Road and Ocean Boulevard to be significant and unavoidable.

Air Traffic

Impact TRAN-2C: Growth in land uses allowed under the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would increase demand for air travel at the County's four airports or increase development within the approach and departure pattern of airports.

Impact of Development with Policies

The discussion of air traffic impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Year 2030 Cumulative plus Project scenario.

Significance Determination

Development of the land uses allowed under the 2007 General Plan by the year 2030 would result in an increase in demand for air travel. Passenger travel in Monterey County peaked in 1978 with about 640,000 passengers annually. Since that time passenger travel has declined to nearly half of its peak (Monterey Airport District, 2008). Without adding additional capacity at airports, the current passenger level could increase to at least 640,000 passengers annually without impacting airport operations (a 96% increase).

Land use growth proposed in the general Plan and specifically the Hwy 68/Monterey Peninsula Airport Affordable Housing Overlay will not be located within airport flight paths, and will not be design in such a way as to become an incompatible land use (i.e., high rise buildings). No change in airport location is being proposed in the 2007 General Plan. (Less than Significant Impact).

Mitigation Measures

Impacts would be less than significant, therefore no mitigation measures are necessary.

Significance Conclusion

The development of the General Plan would increase the demand for the air travel. The General Plan contains policies to encourage safe operations of air facilities and land uses surrounding the airports that are consistent with airport operations. Airport passenger demand is significantly less than it was in 1978 and therefore can accommodate substantial increases without increasing the capacity of airports. Impacts of the General Plan policies under 2030 Cumulative plus Project are less than significant.

Roadway Hazards

Impact TRAN-2D: Growth in land uses allowed under the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would result in non-standard or hazardous designs or land uses that are incompatible with public facilities and adjoining land uses. (Less Than Significant)

Impact of Development with Policies

The discussion of roadway hazard impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Year 2030 Cumulative plus Project scenario.

Significance Determination

Development of the land uses allowed under the 2007 General Plan by the year 2030 would result in non-standard or hazardous designs and incompatible facilities with adjoining land uses. The General Plan provides for policies to prevent or reduce these impacts by requiring roads to be designed to safety standards. These policies require new development to design facilities to County standards. They also provide for road safety programs (signing, marking, and improved sight distance) to improve overall safety. The 2007 General Plan also has policies to limit incompatible land uses. Therefore, the impact of roadway hazards with implementation the 2007 General Plan is less than significant.

Mitigation Measures

No additional mitigation measures beyond the 2007 General Plan are necessary.

Significance Conclusion

The development under the General Plan would result in non-standard or hazardous transportation facility designs or land uses that are incompatible with public facilities. However, the 2007 General Plan contains policies to ensure that new development provides access and improvements to the county roadway system to meet County standards. It also contains policies to prevent incompatible land uses to avoid transportation conflicts and roadway hazards. Therefore, the impact is less than significant.

Emergency Access

Impact TRAN-2E: Growth in land uses allowed under the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would result in inadequate emergency access. (Significant and Unavoidable)

Impact of Development with Policies

The discussion of emergency access impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Year 2030 Cumulative plus Project scenario.

Significance Determination

Development of the land uses allowed under the 2007 General Plan under 2030 Cumulative plus Project would result in inadequate emergency access due to increases in traffic that result in County and Regional roadways exceeding County LOS standards, and creating traffic congestion that slows emergency response time.

The General Plan policies discussed above address transportation related impacts to emergency response due to congestion, and design. However, even with the adoption of county and regional impact fees, and implementation of proposed transportation improvements at the County and Regional level, traffic impacts to County and Regional roadway level of service will remain significant and unavoidable, and thereby cause an impact to emergency response that significant and unavoidable.

Mitigation Measures

The mitigation measures described under the Existing plus Project Development to the Year 2030 (MM-2E) are applicable to this scenario.

Significance Conclusion

The development allowed in the 2007 General Plan would generate traffic that would cause County and Regional roadways to exceed the County's LOS D standard, and contribute to roadways that exceed the standard without development, causing traffic congestion that would impact emergency response time. Although mitigation is proposed to identify and expand emergency response routes and increased road connectivity within new

developments, this measure does not mitigate LOS impacts. This is a significant and unavoidable impact.

Alternative Transportation

Impact TRAN-2F: Development allowed under the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would conflict with adopted policies, plans, or programs supporting alternative transportation or generate pedestrian, bicycle, or transit travel demand that would not be accommodated by current pedestrian facilities, bicycle development plans, or long-range transit plans. (Less than Significant)

Impact of Development with Policies

The discussion of air traffic impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Year 2030 Cumulative plus Project scenario.

Significance Determination

Implementation of the policies in the General Plan and Area Plans for development of the land uses allowed under the 2030 Cumulative plus Project scenario would increase pedestrian, bicycle and transit-supportive facilities by both requiring and encouraging the construction of such facilities and land use patterns in new development. These policies provide support for, and do not conflict with, alternative modes of transportation. The transit-supportive land uses identified in the general Plan are consistent with MST's objective to provide transit-oriented development (Designing for Transit - A Manual for Integrating Public Transit and Land Use in Monterey County, MST, 2006).

The land uses allowed under the General Plan, if consistent with policy, would increase the need for transit service with concentrations of development in existing transit-served corridors, community areas, and near incorporated cities. The increase in demand for transit service is consistent with MST's strategic goals of increasing transit ridership, expanding service, and introducing new services such as BRT in major corridors (Peninsula Area Service Study, 2006 and Business Plan and Short Range Transit Plan, FY 2008 through 2008). Therefore, this impact is less than significant.

Mitigation Measures

No mitigation measures are necessary.

Significance Conclusion

The policies contained in the General Plan provide both requirements and encouragement of alternative mode infrastructure and facilities, and promote transit-support land use patterns. These polices support and do not conflict with existing facilities, policies, plans and programs. The development allowed under the General Plan will generate demand for pedestrian and bicycle facilities, and demand for transit services. These demands can be accommodated by ensuring development conforms to County policies and design standards, and are consistent with the goals and strategies of MST, the County's transit service provider. This is a less than significant impact.

Existing plus Project (Buildout of the General Plan)

Buildout of the General Plan represents the combination of existing conditions and forecast 2007 General Plan buildout development within unincorporated Monterey County. The number of potential housing units to be added to unincorporated Monterey County was determined from the number of vacant residential lots and the assigned zoning within each planning area or community area. Employment was derived based on the rate of growth in housing units and population by maintaining the employee per housing unit ratio contained in the 2030 AMBAG model constant. At the annual rate of residential growth derived from the AMBAG 2004 forecasts, buildout of the 2007 General Plan is estimated to occur in the year 2092.

This scenario identifies the impacts of development in unincorporated areas of the County assuming no development in incorporated areas and adjacent counties.

Project-Specific Impacts of the Development under Existing plus Project Buildout

Impact TRAN-3A: Buildout of the 2007 General Plan would cause project-specific impacts on County roadways which would cause roadways to fall below the acceptable LOS standard D. (Less Than Significant Impact).

Impact of Development with Policies

Project-specific impacts of new development are described in Impact TRAN-1A. These are localized impacts that affect the immediate surrounding transportation system, including access and circulation necessary for the

development to function properly and safely. Some project-specific impacts are exclusively attributable to the development such as access connections between the development site and public roadway system. Other project-specific impacts such as impacts to the public roadway system in the immediate vicinity of the development site are cumulative with other development in the area.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Existing plus Project Buildout scenario.

Significance Determination

Project-specific impacts of new development will continue to occur through buildout of the General Plan. As long as General Plan policies remain in effect, new development will be required to prepare a project-level traffic study, or project-level Environmental Impact Report. Impacts to roadway LOS or project access would be identified in these studies and development would be fully responsible for the implementation of mitigation measures or would be responsible for its fair-share of the mitigation depending on the extent of the impact and the development's contribution to the impact along with other cumulative development. If a roadway already falls below the County's LOS standard, then the development is required to mitigate its impact so that the measure of performance (e.g., volume to capacity ratio, peak hour average delay, etc.) of the roadway does not degrade beyond the level without the development. This is a less than significant impact.

Mitigation Measures

Impacts are less than significant, therefore no mitigation is necessary.

Significance Conclusion

Implementation of the 2007 General Plan consistent with policies related to project-specific localized impacts (Policy C-1.4, new development is required to mitigate project-specific local impacts to maintain the County's LOS standard and to provide adequate access and circulation facilities. Policy C-1.3 restricts new development or requires the phasing of new development so that it is concurrent with transportation improvements) would have a less than significant impact and no mitigation is required.

County and Regional Roadway Level of Service Impacts (Existing plus Project Buildout)

Impact TRAN-3B: Buildout of the 2007 General Plan would *increase traffic on* County and Regional roadways which would cause the LOS to exceed the LOS D standard, or contribute traffic to County and Regional roads that exceed the LOS standard without development. (Significant and unavoidable impact)

Impact of Development with Policies

The LOS on study area roadways for the Existing plus Project Buildout scenario is illustrated graphically in Exhibit 4.6.9. A detailed analysis of roadway level of service by segment is included in the Appendix.

Table 4.6-21 shows the roadway segments operating at deficient level of service under this scenario and compares the segments to their LOS under existing conditions. As shown in Table 4.6-21, there are 4 segments that operate at LOS E and 39 segments that operate at LOS F in this scenario. Segments of Carmel Valley Road between SR 1 and Ford Road in the CVMP area are projected to operate at LOS F at buildout of the General Plan. Carmel Valley Road segments between Ford Road and Via Los Tulares will operate at LOS D, exceeding the CVMP LOS standard of LOS C.

In comparison, under existing conditions, 28 of the segments in Table 4.6-21 currently operate at LOS E or F. The development in the County at buildout causes an additional 16 roadway segments to exceed the county's LOS threshold. In the CVMP area, the development in the County up to the year 2030, cumulatively with other development, causes an additional two roadway segments to exceed the county's LOS threshold as defined in the CVMP. Further discussion of impacts of the 2007 General Plan within the Carmel Valley Plan Area are discussed in the next section.

Table 4.6-21. County Roadway Segments Operating at LOS E or F under Existing plus Project Buildout Conditions

Roadway Segment		Existing Conditions		Existing plus Project Buildout Conditions	
		V/C Ratio	LOS	V/C Ratio	LOS
Roadway Segments Operating at LOS F in the Existing plus Project Buildout Scenario					
County Road G11 (San Juan Rd)	Salinas Rd to San Miguel Canyon Rd	0.942	E	1.447	F
County Road G11 (San Juan Rd)	Aromas Rd to Carpenteria Rd	0.938	E	1.173	F
County Road G12 (Salinas)	Porter Dr to Railroad Ave	1.236	F	1.514	F
County Road G12 (Elkhorn Rd)	Salinas Rd to Hall Rd	1.339	F	1.418	F
County Road G12 (Hall Rd)	Elkhorn Rd to San Miguel Canyon Rd	1.879	F	1.935	F
County Road G12 (San Miguel Canyon Rd)	Strawberry Rd to Castroville Blvd	1.485	F	1.404	F
County Road G12 (San Miguel Canyon Rd)	Castroville Blvd to US-101	1.486	F	1.267	F
County Road G14 (Jolon)	US-101 to San Lucas Rd	0.582	D	1.747	F
County Road G16 (Carmel Valley Road)	SR-1 to Carmel Rancho Blvd	0.833	D	1.084	F
County Road G16 (Carmel Valley Road)	Carmel Rancho Blvd to Rio Rd	0.782	D	1.081	F
County Road G16 (Carmel Valley Road)	Rio Rd to Rancho San Carlos Rd	1.305	F	1.89	F
County Road G16 (Carmel Valley Road)	Rancho San Carlos Rd to Valley Greens Dr	1.434	F	2.055	F
County Road G16 (Carmel Valley Road)	Valley Greens Dr to Robinson Canyon Rd	1.01	F	1.507	F
County Road G16 (Carmel Valley Road)	Robinson Canyon Rd to Miramonte Rd	1.006	F	1.473	F
County Road G16 (Carmel Valley Road)	Miramonte Rd to Laureles Grade	0.946	E	1.122	F
County Road G16 (Carmel Valley Road)	Laureles Grade to Ford Rd	0.933	E	1.43	F
County Road G16 (Carmel Valley Road)	Ford Rd to Esquiline Rd	0.745	D	0.882	D
County Road G17 (Reservation)	Davis Rd to SR-68	0.698	D	1.575	F

County Road G17 (River Rd)	SR-68 to Las Palmas Rd	0.481	C	1.042	F
County Road G17 (River Rd)	Las Palmas Rd to Las Palmas Pkwy	0.805	D	1.5	F
County Road G20 (Laureles Grade Rd)	SR-68 to Robley Rd	0.591	D	1.002	F
Blanco Rd	Reservation Rd to Cooper Rd	2.033	F	2.35	F
Blanco Rd	Cooper Rd to Armstrong Rd	2.146	F	2.408	F
Blanco Rd	Armstrong Rd to Davis Rd	2.292	F	2.592	F
Calle Del Adobe	Boranda Rd to Post Dr	0.359	C	1.125	F
Camino Del Monte	Carmel City Line to Serra Ave	0.531	D	1.542	F
Carpenter St	Serra Ave to SR-1	1.354	F	1.892	F
Crazy Horse Canyon Rd	San Juan Grade Rd to US-101	0.449	C	1.199	F
Davis Rd	Blanco Rd to Reservation Rd	0.958	E	1.135	F
Ocean Ave	Carmel City Line to SR-1	1.229	F	1.5	F
Pine Canyon Rd (King City)	Pine Meadow Dr to Merritt St	0.258	C	1.375	F
Porter Dr	Salinas Rd to San Juan Rd	0.967	E	1.142	F
Porter Dr	San Juan Rd to Santa Cruz County Line	1.423	F	1.846	F
Rio Rd	Carmel City Line to SR-1	1.161	F	1.375	F
Russell Rd	SR-101 to San Juan Grade Rd	0.661	D	1.042	F
Salinas Rd	SR-1 to Fruitland Ave	0.972	E	1.019	F
San Benancio Rd	Harper Canyon Rd to SH-68	0.568	D	1.177	F
San Juan Grade Rd	Salinas City Line to Russell Rd	1.015	F	1.378	F
San Juan Grade Rd	Russell Rd to Rogge Rd	0.747	D	1.37	F
San Juan Grade Rd	Hebert Rd to Crazy Horse Canyon Rd	0.402	C	1.259	F
Roadway Segments Operating at LOS E in the Existing plus Project Buildout Scenario					
County Road G17 (Reservation)	East Garrison Rd to Davis Rd	0.418	C	0.986	E
Corral De Tierra	SH-68 to Robley Rd	0.682	D	0.802	E
Espinosa Rd	SR-183 to US-101	0.896	E	0.979	E
Harris Rd	Spreckels Blvd to Abbott St	0.844	E	0.823	E
Roadway Segments Operating at Deficient LOS D in the Existing plus Project Buildout Scenario					
County Road G16 (Carmel Valley Road)	Holman Rd to Via Los Tulares	Refer to existing conditions analysis		0.548	D
County Road G16(Carmel Valley Road)	SR-1 to Carmel Rancho Blvd			1.084	F
County Road G16(Carmel Valley Road)	Carmel Rancho Blvd to Rio Rd			1.081	F
County Road G16(Carmel	Rio Rd to Rancho San Carlos Rd			1.89	F

Valley Road)					
County Road G20 (Laureles Grade Rd)	Robley Rd to Carmel Valley Rd	0.582	D	0.916	D
Carmel Rancho Blvd	Carmel Valley Blvd to Carmel Rancho Ln	0.619	D	0.758	D
Carmel Rancho Blvd	Carmel Rancho Ln to Rio Rd	0.402	C	0.475	D
Rio Rd	SR-1 to Carmel Rancho Blvd	0.575	D	0.679	D

Source: Kimley-Horn and Associates, Inc.

Table 4.6-22 presents the Regional roadway segments operating at LOS E or LOS F under Existing plus Project Buildout conditions and compares the segments to their LOS under existing conditions. Exhibit 4.6.9 presents the segment LOS graphically. A detailed table showing the volume, the volume to capacity ratio and the resulting LOS for each Regional roadway segment is included in the Appendix.

There are nine regional roadway segments that operate at LOS E and 55 segments that operate at LOS F under this scenario. Under existing conditions, 54 of these Regional roadway segments operate at LOS E or F, so development in the County at buildout causes an additional ten roadway segments to exceed the County's LOS threshold.

Table 4.6-22. Regional Roadway Segments Operating at LOS E or F under Existing plus Project Buildout Conditions

		Existing Conditions		Existing plus Project Buildout Conditions	
Roadway Segment		V/C Ratio	LOS	V/C Ratio	LOS
Roadway Segments Operating at LOS F in the Existing plus Project Buildout Scenario					
US Highway 101	County Border to Crazy Horse Canyon Rd	1.044	F	1.136	F
US Highway 101	Crazy Horse Canyon Rd to San Miguel Canyon Rd	0.989	E	1.076	F
US Highway 101	San Miguel Canyon Rd to SR-156	1.441	F	1.567	F
US Highway 101	SR-156 to Pesante Rd	1.106	F	1.202	F
US Highway 101	Pesante Rd to Espinosa Rd	1.106	F	1.202	F
US Highway 101	Espinosa Rd to E Boronda Rd	1.098	F	1.195	F
US Highway 101	E Boronda Rd to W Laurel Dr	1.143	F	1.243	F
US Highway 101	W Laurel Dr to N Main St	1.107	F	1.234	F

Roadway Segment		Existing Conditions		Existing plus Project Buildout Conditions	
		V/C Ratio	LOS	V/C Ratio	LOS
US Highway 101	N Main St to E Market St	1.172	F	1.275	F
US Highway 101	E Market St to John St	1.114	F	1.211	F
SR-1	Salinas Rd to Struve Rd	1.546	F	1.683	F
SR-1	Struve Rd to Dolan Rd	1.667	F	1.811	F
SR-1	Dolan Rd to Molera Rd	1.496	F	1.627	F
SR-1	Molera Rd to SR-183	1.426	F	1.550	F
SR-1	Fremont Blvd to Canyon del Rey Blvd	1.006	F	1.094	F
SR-1	Canyon del Rey Blvd to Del Monte Ave	1.071	F	1.165	F
SR-1	N Fremont St to Aguajito Rd	1.411	F	1.534	F
SR-1	Holman Hwy to Carpenter St	0.890	D	1.080	F
SR-1	Carpenter St to Ocean Ave	1.447	F	1.842	F
SR-1	Ocean Ave to Carmel Valley Rd	1.208	F	1.422	F
SR-68 (Holman Highway)	Forest Ave to 17 Mile Dr	1.448	F	1.644	F
SR-68 (Holman Highway)	17 Mile Dr to Skyline Forest Dr	1.638	F	1.877	F
SR-68 (Holman Highway)	Skyline Forest Dr to CHOMP Dwy	1.638	F	1.890	F
SR-68 (Holman Highway)	CHOMP Dwy to SR-1	1.638	F	1.865	F
SR-68 (Monterey Salinas Highway)	SR-1 to Olmsted Rd	1.422	F	1.641	F
SR-68 (Monterey Salinas Highway)	Olmsted Rd to Canyon del Rey Blvd	1.422	F	1.542	F
SR-68 (Monterey Salinas Highway)	Canyon del Rey Blvd to Bit Rd	1.304	F	1.540	F
SR-68 (Monterey Salinas Highway)	Bit Rd to Laureles Grade Rd	1.304	F	1.521	F
SR-68 (Monterey Salinas Highway)	Laureles Grade Rd to Corral de Tierra	1.525	F	1.834	F
SR-68 (Monterey Salinas Highway)	Corral de Tierra to Portola Dr	1.617	F	1.933	F
SR-68 (Monterey Salinas Highway)	Spreckels Blvd to E Blanco Rd	0.811	B	1.123	F
SR-156	Castroville Blvd to US-101	1.902	F	1.871	F
SR-183 (Merritt St)	SR-156 to Blackie Rd	1.184	F	1.442	F
SR-183 (Castroville Rd)	Blackie Rd to Espinosa Rd	1.074	F	1.233	F
SR-183 (Castroville Rd)	Espinosa Rd to Cooper Rd	1.012	F	1.172	F

Roadway Segment		Existing Conditions		Existing plus Project Buildout Conditions	
		V/C Ratio	LOS	V/C Ratio	LOS
SR-218 (Canyon del Rey Blvd)	Fremont Blvd to Carlton Dr	1.099	F	1.315	F
SR-218 (Canyon del Rey Blvd)	Carlton Dr to SR-68	1.099	F	1.425	F
Foam St	Prescott Ave to Drake Ave	1.156	F	2.725	F
Foam St	Drake Ave to Lighthouse Ave	1.277	F	2.858	F
Lighthouse Ave	Private Bolio Rd to Pacific St	1.27	F	1.191	F
Lighthouse Ave	Pacific St to Washington St	1.124	F	1.061	F
Del Monte Ave	Washington St to Camino Aguajito	1.314	F	1.314	F
Del Monte Ave	Camino Aguajito to Casa Verde Wy	1.313	F	1.337	F
Del Monte Ave	Casa Verde Wy to SR-1	1.443	F	1.469	F
Fremont St	Abrego St to Camino Aguajito	1.065	F	1.087	F
Munras Ave/Abrego St	Soledad Dr to Via Zaragoza	1.226	F	1.450	F
Del Monte Blvd	SR-1 to Canyon del Rey Blvd	1.039	F	1.039	F
Del Monte Blvd	Canyon del Rey Blvd to Broadway Ave	1.058	F	1.049	F
Del Monte Blvd	SR-1 to Reindollar Ave	1.081	F	1.113	F
Del Monte Blvd	Reindollar Ave to Reservation Rd	1.929	F	2.013	F
N Fremont St	Casa Verde Wy to SR-218	0.971	E	1.065	F
S Main St	Romie Ln to E Blanco Rd	0.817	D	1.079	F
John St	Abbott St to US-101	1.069	F	1.178	F
Davis Rd	W Laurel Dr to SR-183	1.057	F	1.233	F
Davis Rd	SR-183 to W Blanco Rd	2.428	F	2.870	F
Roadway Segments Operating at LOS E in the Existing plus Project Buildout Scenario					
US Highway 101	John St to S Sanborn Rd	0.897	D	0.975	E
SR-1	Del Monte Ave to N Fremont St	0.890	D	0.952	E
SR-1	Aguajito Rd to Munras Ave	0.854	D	0.929	E
Foam St	David Ave to Prescott Ave	0.661	D	0.783	E
Lighthouse Ave	Prescott Ave to Private Bolio Rd	1.637	F	0.951	E
Sanborn Rd	US-101 to Abbott St	0.983	E	0.994	E

Roadway Segment		Existing Conditions V/C Ratio	Existing Conditions LOS	Existing plus Project Buildout Conditions V/C Ratio	Existing plus Project Buildout Conditions LOS
N Main St	W Laurel Dr to E Bernal Dr	0.921	D	0.951	E
E Boronda Rd	US-101 to N Main St	0.923	D	0.970	E
S Main St	John St to Romie Ln	0.768	D	0.950	E

Source: Kimley-Horn and Associates, Inc.

Table 4.6-23 compares existing and Existing plus Project Buildout roadway LOS on Regional roadways external to Monterey County. Traffic generated by the land uses allowed under the 2007 General Plan will produce inter-county travel between housing and jobs in Santa Cruz, San Benito, and Santa Clara counties, and to a lesser extent San Luis Obispo County. With cumulative development in adjacent counties increases the demand for this inter-county travel. Development allowed under the General Plan, cumulatively with development in incorporated cities in Monterey County and development in adjacent counties, causes nearly every roadway segment to experience an increase in the volume to capacity ratio, and causes four segments to change from LOS D or better to a LOS E or F.

Table 4.6-23. Roadway Level of Service of Facilities External to Monterey County under Existing plus Project Buildout Conditions

Roadway Segment		Existing Conditions V/C Ratio	Existing Conditions LOS	Existing plus Project Buildout Conditions V/C Ratio	Existing plus Project Buildout Conditions LOS
Santa Clara County					
US Highway 101	Cochrane Rd to E Dunne Ave	1.139	F	0.820	D
US Highway 101	Masten Ave to Leavesley Rd/SR-152 West	0.989	E	0.824	D
US Highway 101	Monterey Rd to SR-25	1.071	F	0.964	E
SR-152	SR-156 to Merced County	0.630	C	0.634	C
Santa Cruz County					
SR-1	Soquel Ave to 41st St	1.368	F	1.071	F
SR-1	Airport Blvd to SR-152	0.876	D	0.731	C
SR-1	Harkings Slough Rd to SR-129	0.608	C	0.541	B
SR-1	SR-129 to Monterey County	0.492	B	0.423	B

Roadway Segment		Existing Conditions V/C Ratio	Existing Conditions LOS	Existing plus Project Buildout Conditions V/C Ratio	Existing plus Project Buildout Conditions LOS
SR-17	Santa Clara County to Granite Creek Rd	0.958	E	0.945	E
SR-129 (Riverside Rd)	Lakeview Rd to Carlton Rd	0.847	D	0.926	D
San Benito County					
US Highway 101	Santa Clara County to SR-129	0.912	E	0.809	D
SR-25(Bolsa Rd)	Santa Clara County to SR-156	1.196	F	1.049	F
SR-156	Salinas Rd to Union Rd	1.706	F	1.718	F
San Luis Obispo County					
US Highway 101	Monterey County to San Miguel Ave	0.300	A	0.314	A

Source: Kimley-Horn and Associates, Inc.

Impact of Goods Movement on Roadway Level of Service

There are no actual projections of truck traffic to buildout in the year 2092, but using employment growth as a proxy for growth in business that generates the need for freight movement, truck traffic would grow about 20% between 2030 and buildout. Therefore truck traffic would increase from 18,600 truck trips per day in 2030 to 22,200 at buildout.

As described earlier, this increase in freight movement is not significant enough to cause widespread capacity-related impacts, but will contribute large vehicle traffic to roadways and highways that are currently, or are projected to fall below the County's acceptable LOS standard and may cause the localized impacts on heavily traveled freight routes and within industrialized areas where truck traffic originates.

2007 General Plan Policies

The policies related to roadway level of service described in the Existing plus Project Development to the Year 2030 scenario apply to the Existing plus Project buildout scenario.

Significance Determination

Buildout the 2007 General Plan would increase traffic volumes on County roads, Regional roads, and regional roads external to the County. This added traffic would both cause roadway segments to exceed the County's LOS standard, and contribute traffic to roadways that exceed the LOS standard

without development, and further degrade the performance measure. Despite development contributions to county impacts (through countywide traffic impact fee), and regional impacts (through regional traffic impact fee) there will remain a funding shortfall for the improvement of County and Regional roads to achieve the County's LOS standard. Therefore this impact remains significant and unavoidable.

Mitigation Measures

Mitigation of the LOS impacts described above (see mitigation measure for Impact TRAN-2B) would require extensive County and Regional roadway widening, and intersection modifications to provide enough capacity to achieve the County's LOS D (or LOS C within Area Plans such as the CVMP) standard on all impacted segments, some outside of Monterey County. Additionally, mitigation would include substantial increases in public transportation services.

The mitigation measures recommended for implementation by the County to achieve LOS standards within the CVMP area under the 2030 Cumulative plus Project scenario are applicable to this scenario. However, segments of Carmel Valley Road and SR 1 in the CVMP area will exceed the CVMP level of standards, and no further mitigation of these facilities is feasible. Therefore this impact will be significant and unavoidable.

Significance Conclusion

Buildout of the 2007 General Plan would have a significant and unavoidable impact on County roads, and Regional roads both within and external to Monterey County. No mitigation is proposed for these facilities and they remain significant and unavoidable.

Air Traffic

Impact TRAN-3C: Buildout of the 2007 General Plan would increase demand for air travel at the County's four airports or increase development within the approach and departure pattern of airports. (Less Than Significant)

Impact of Development with Policies

The discussion of air traffic impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to this scenario.

Significance Determination

As described earlier, development of the land uses allowed under the 2007 General Plan would result in an increase in demand for air travel. Passenger travel in Monterey County peaked in 1978 with about 640,000 passengers annually. Since that time passenger travel has declined to nearly half of its peak (Monterey Airport District, 2008). Without adding additional capacity at airports, the current passenger level could increase to at least 640,000 passengers annually without impacting airport operations (a 96% increase).

Land use growth proposed in the general Plan and specifically the Highway 68/Monterey Peninsula Airport Affordable Housing Overlay will not be located within airport flight paths, and will not be designed in such a way as to become an incompatible land use (i.e., high rise buildings). No change in airport location is being proposed in the 2007 General Plan. This is a less than significant impact.

Mitigation Measures

Impacts would be less than significant, therefore no mitigation measures are necessary.

Significance Conclusion

The development of the General Plan would increase the demand for the air travel. The General Plan contains policies to encourage safe operations of air facilities and land uses surrounding the airports that are consistent with airport operations. Airport passenger demand is significantly less than it was in 1978 and therefore can accommodate substantial increases without increasing the capacity of airports. Impacts of the General Plan policies under Existing plus Project Buildout are less than significant.

Roadway Hazards

Impact TRAN-3D: Buildout of the 2007 General Plan would result in non-standard or hazardous designs or land uses that are incompatible with public facilities and adjoining land uses. (Less Than Significant)

Impact of Development with Policies

The discussion of roadway hazard impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to this scenario.

Significance Determination

Buildout of the 2007 General Plan would result in non-standard or hazardous designs and incompatible facilities with adjoining land uses. The General Plan policies described earlier to prevent or reduce these impacts or limit incompatible land uses. Therefore, the impact of roadway hazards at buildout of the 2007 General Plan is less than significant.

Mitigation Measures

No additional mitigation measures beyond the 2007 General Plan are necessary.

Significance Conclusion

Buildout of the General Plan would result in non-standard or hazardous transportation facility designs or land uses that are incompatible with public facilities. However, the 2007 General Plan contains policies to ensure that new development provides access and improvements to the county roadway system to meet County standards. It also contains policies to prevent incompatible land uses to avoid transportation conflicts and roadway hazards. Therefore, the impact is less than significant.

Emergency Access

Impact TRAN-3E: Buildout of the 2007 General Plan would result in inadequate emergency access. (Significant and Unavoidable)

Impact of Development with Policies

The discussion of emergency access impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to this scenario.

Significance Determination

Buildout of the 2007 General Plan would result in inadequate emergency access due to increases in traffic that result in County and Regional roadways exceeding County LOS standards, and creating traffic congestion that slows emergency response time.

The General Plan policies discussed above address transportation related impacts to emergency response due to congestion, and design. However, even with the adoption of county and regional impact fees, and implementation of proposed transportation improvements at the County and Regional level, traffic impacts to County and Regional roadway level of service will remain significant and unavoidable, and thereby cause an impact to emergency response that significant and unavoidable.

Mitigation Measures

The mitigation measures described under the Existing plus Project Development to the Year 2030 are applicable to this scenario.

Significance Conclusion

Buildout of the 2007 General Plan would generate traffic that would cause County and Regional roadways to exceed the County's LOS D standard, and contribute to roadways that exceed the standard without development, causing traffic congestion that would impact emergency response time. This is a significant and unavoidable impact.

Alternative Transportation

Impact TRAN-3F: Buildout of the 2007 General Plan would conflict with adopted policies, plans, or programs supporting alternative transportation or generate pedestrian, bicycle, or transit travel demand that would not be accommodated by current pedestrian facilities, bicycle development plans, or long-range transit plans. (Less than Significant)

Impact of Development with Policies

The discussion of air traffic impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to this scenario.

Significance Determination

As described earlier, implementation of the policies in the General Plan and Area Plans for buildout of the General Plan would increase pedestrian, bicycle and transit-supportive facilities by both requiring and encouraging the construction of such facilities and land use patterns in new development. These policies provide support for, and do not conflict with, alternative modes of transportation. The transit-supportive land uses identified in the general Plan are consistent with MST's objective to provide transit-oriented development (Designing for Transit - A Manual for Integrating Public Transit and Land Use in Monterey County, MST, 2006).

The land uses allowed under the General Plan, if consistent with policy, would increase the need for transit service with concentrations of development in existing transit-served corridors, community areas, and near incorporated cities. The increase in demand for transit service is consistent with MST's strategic goals of increasing transit ridership, expanding service, and introducing new services such as BRT in major corridors (Peninsula Area Service Study, 2006 and Business Plan and Short Range Transit Plan, FY 2008 through 2008). Therefore, this impact is less than significant.

Mitigation Measures

No mitigation measures are necessary.

Significance Conclusion

The policies contained in the General Plan provide both requirements and encouragement of alternative mode infrastructure and facilities, and promote transit-support land use patterns. These polices support and do not conflict with existing facilities, policies, plans and programs. The development allowed under the General Plan will generate demand for pedestrian and bicycle facilities, and demand for transit services. These demands can be accommodated by ensuring development conforms to County policies and design standards, and are consistent with the goals and strategies of MST, the County's transit service provider. This is a less than significant impact.

Buildout Cumulative plus Project

Buildout Cumulative plus Project conditions represent forecast year 2092 conditions with full implementation of the allowed land uses in the 2007 General Plan and projected growth in incorporated cities through the year 2092. This scenario includes development in adjacent counties (Santa Cruz, San Benito, and Santa Clara) to the year 2030 since growth projections to 2092 for those counties are not available.

This scenario identifies the impacts of development in unincorporated areas of the County cumulative with development in incorporated areas and adjacent counties by identifying changes in roadway level of service. This analysis of the 2007 General Plan is compared to No Project conditions under the 1982 General Plan.

Project-Specific Impacts of the Development under Buildout Cumulative plus Project Conditions

Impact TRAN-4A: Buildout of the 2007 General Plan cumulatively with development in incorporated cities and adjacent counties would cause project-specific impacts on County roadways which would cause roadways to fall below the acceptable LOS standard D. (Less Than Significant Impact).

Impact of Development with Policies

Project-specific impacts of new development are described in Impact TRAN-1A.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Existing plus Project Buildout scenario.

Significance Determination

Project-specific impacts of new development will continue to occur through buildout of the General Plan. As long as General Plan policies remain in effect, new development will be required to prepare a project-level traffic study, or project-level Environmental Impact Report. Impacts to roadway LOS or project access would be identified in these studies and development would be fully responsible for the implementation of mitigation measures or would be responsible for its fair-share of the mitigation depending on the extent of the impact and the development's contribution to the impact along with other cumulative development. If a roadway already falls below the County's LOS standard, then the development is required to mitigate its impact so that the measure of performance (e.g., volume to capacity ratio, peak hour average delay, etc.) of the roadway does not degrade beyond the level without the development. This is a less than significant impact.

Mitigation Measures

Impacts are less than significant, therefore no mitigation is necessary.

Significance Conclusion

Implementation of the 2007 General Plan consistent with policies related to project-specific localized impacts (Policy C-1.4, new development is required to mitigate project-specific local impacts to maintain the County's LOS standard and to provide adequate access and circulation facilities. Policy C-1.3 restricts new development or requires the phasing of new development so that it is concurrent with transportation improvements) would have a less than significant impact and no mitigation is required.

County and Regional Roadway Level of Service Impacts (Buildout Cumulative plus Project)

Impact TRAN-4B: Buildout of the 2007 General Plan cumulatively with development in incorporated cities and in adjacent counties would create *traffic increases on* County and Regional roadways which would cause the LOS to exceed the LOS D standard, or contribute traffic to County and Regional roads that exceed the LOS standard without development. (Significant and unavoidable impact)

Impact of Development with Policies

The LOS on study area roadways for the Buildout Cumulative plus Project scenario is illustrated graphically in Exhibit 4.6.10. A detailed analysis of roadway level of service by segment is included in the Appendix.

Table 4.6-24 shows the roadway segments operating at deficient level of service under this scenario. As shown in Table 4.6-24, there are nine segments that operate at LOS E and 59 segments that operate at LOS F in this scenario. In comparison, under Existing plus Project Buildout conditions, 43 of the segments in Table 4.6-24 currently operate at LOS E or F. This indicates that buildout of the County, cumulatively with development in incorporated cities and adjacent counties cause an additional 25 roadway segments to exceed the County's LOS standard.

Table 4.6-24. County Roadway Segments Operating at LOS E or F under Buildout Cumulative plus Project Conditions

		Buildout Cumulative plus Project Conditions	
Roadway Segment		V/C Ratio	LOS
Roadway Segments Operating at LOS F in the Buildout Cumulative Conditions Scenario			
County Road G11 (San Juan Rd)	Salinas Rd to San Miguel Canyon Rd	1.14	F
County Road G12 (Elkhorn Rd)	Salinas Rd to Hall Rd	1.29	F
County Road G12 (Hall Rd)	Elkhorn Rd to San Miguel Canyon Rd	2.97	F
County Road G12 (San Miguel Canyon Rd)	Hall Rd to Strawberry Rd	1.32	F
County Road G12 (San Miguel Canyon Rd)	Strawberry Rd to Castroville Blvd	1.55	F
County Road G12 (San Miguel Canyon Rd)	Castroville Blvd to US-101	1.46	F
County Road G14 (Jolon)	US-101 to San Lucas Rd	1.88	F
County Road G16 (Carmel Valley Road)	SR-1 to Carmel Rancho Blvd	1.30	F
County Road G16 (Carmel Valley Road)	Carmel Rancho Blvd to Rio Rd	1.35	F
County Road G16 (Carmel Valley Road)	Rio Rd to Rancho San Carlos Rd	2.45	F
County Road G16 (Carmel Valley Road)	Rancho San Carlos Rd to Valley Greens Dr	3.13	F
County Road G16 (Carmel Valley Road)	Valley Greens Dr to Robinson Canyon Rd	2.27	F
County Road G16 (Carmel Valley Road)	Robinson Canyon Rd to Miramonte Rd	2.35	F
County Road G16 (Carmel Valley Road)	Miramonte Rd to Laureles Grade	1.85	F
County Road G16 (Carmel Valley Road)	Laureles Grade to Ford Rd	1.94	F
County Road G16 (Carmel Valley Road)	Ford Rd to Esquiline Rd	1.13	F
County Road G16 (Carmel Valley Road)	Holman Rd to Via Los Tulares	1.08	F
County Road G17 (Reservation)	Blanco Rd to East Garrison Rd	1.96	F
County Road G17 (Reservation)	East Garrison Rd to Davis Rd	2.23	F
County Road G17 (Reservation)	Davis Rd to SR-68	1.47	F
County Road G17 (River Rd)	SR-68 to Las Palmas Rd	1.28	F
County Road G17 (River Rd)	Las Palmas Rd to Las Palmas Pkwy	1.01	F
County Road G17 (River Rd)	Las Palmas Pkwy to Pine Canyon Rd	1.21	F
County Road G17 (River Rd)	Pine Canyon Rd to Chualar River Rd	1.51	F
County Road G17 (River Rd)	Chualar River Rd to Gonzales River Rd	1.05	F
County Road G17 (River Rd)	Foothill Rd to Arroyo Seco Rd	1.25	F

Roadway Segment		Buildout Cumulative plus Project Conditions V/C Ratio	LOS
County Road G20 (Laureles Grade Rd)	Robley Rd to Carmel Valley Rd	1.37	F
Blanco Rd	W Alisal St to SR-68	1.29	F
Blanco Rd	SR-68 to Abbott St	1.67	F
Arroyo Seco Rd	Fort Romie Rd to US-101	1.56	F
Blanco Rd	Reservation Rd to Cooper Rd	3.34	F
Blanco Rd	Cooper Rd to Armstrong Rd	3.13	F
Blanco Rd	Armstrong Rd to Davis Rd	3.33	F
Camino Del Monte	Carmel City Line to Serra Ave	1.60	F
Carpenter St	Carmel City Line to Serra Ave	1.55	F
Carpenter St	Serra Ave to SR-1	2.43	F
Chualar Rd	US-101 to Old Stage Rd	1.60	F
Corral De Tierra	SH-68 to Robley Rd	1.33	F
Crazy Horse Canyon Rd	San Juan Grade Rd to US-101	1.71	F
Espinosa Rd	SR-183 to US-101	1.18	F
Grant St	Scott St to Clay St	1.07	F
Harris Rd	Spreckels Blvd to Abbott St	2.13	F
Nashua Rd	SR-1 to Cooper Rd	1.46	F
Ocean Ave	Carmel City Line to SR-1	2.00	F
Old Stage Rd	Hebert Rd to Natividad Rd	1.75	F
Old Stage Rd	Natividad Rd to Williams Rd	3.28	F
Pine Canyon Rd (King City)	Pine Meadow Dr to Merritt St	1.38	F
Pine Canyon Rd (King City)	Merrit St to Jolon Rd	1.14	F
Porter Dr	Salinas Rd to San Juan Rd	1.54	F
Porter Dr	San Juan Rd to Santa Cruz County Line	3.19	F
Prunedale North Rd	SR-156 to San Miguel Canyon	1.65	F
Rio Rd	Carmel City Line to SR-1	2.27	F
Rogge Rd	San Juan Grade Rd to Natividad Rd	1.29	F
Russell Rd	SR-101 to San Juan Grade Rd	2.39	F
Salinas Rd	Fruitland Ave to Elkhorn Rd	1.17	F
San Benancio Rd	Harper Canyon Rd to SH-68	1.27	F
San Juan Grade Rd	Salinas City Line to Russell Rd	2.11	F
San Juan Grade Rd	Russell Rd to Rogge Rd	2.15	F
San Juan Grade Rd	Hebert Rd to Crazy Horse Canyon Rd	1.33	F
Spreckels Blvd	SR-68 to Harkins Rd	1.21	F
Roadway Segments Operating at LOS E in the Buildout Cumulative Conditions Scenario			
County Road G12(Salinas Rd)	Railroad Ave to Elkhorn Rd	0.98	E

Roadway Segment		Buildout Cumulative plus Project Conditions V/C Ratio	LOS
County Road G20 (Laureles Grade Rd)	SR-68 to Robley Rd	0.96	E
Munras Ave/Abrego St	Fremont St to Soledad Dr	0.88	E
N Fremont St	SR-1 to Casa Verde Wy	0.96	E
Grant St	Payson Rd to Scott St	0.99	E
Pajaro St	SR-183 to Geil St	0.85	E
Portola Dr (Toro Park)	Reservation Rd to Creekside Ter	0.79	E
Portola Dr (Toro Park)	Anza Dr to Manolete Dr	0.89	E
San Miguel Canyon Rd	Tarpey Rd to Hall Rd	0.93	E
Roadway Segments Operating at Deficient LOS D in the Buildout Cumulative Conditions Scenario			
County Road G16 (Carmel Valley Road)	Esquiline Rd to Holman Rd	0.522	D
County Road G16 (Carmel Valley Road)	Holman Rd to Via Los Tulares	0.890	D
County Road G16 (Carmel Valley Road)	Via Los Tulares to Cachagua Rd	0.753	D
Carmel Rancho Blvd	Carmel Valley Blvd to Carmel Rancho Ln	0.775	D
Carmel Rancho Blvd	Carmel Rancho Ln to Rio Rd	0.625	D
Rio Rd	SR-1 to Carmel Rancho Blvd	0.754	D

Source: Kimley-Horn and Associates, Inc.

Impact of Development in the Carmel Valley Area Plan

The traffic analysis of the CVMP and the Carmel Valley Transportation Improvement Program used to present impacts of the General Plan on 2030 Cumulative Projects did not evaluate impacts of buildout of the General Plan to the year 2092. Therefore, roadway segments within the Carmel Valley Master Plan area are analyzed using the daily level of service methodology used to analyze other roadways in the County. These segments are included in Table 4.6-XX above and Table 4.6-YY below.

Table 4.6-25 presents the Regional roadway segments operating at LOS E or LOS F under 2030 Cumulative plus Project conditions. Exhibit 4.6.10 presents the segment LOS graphically. A detailed table showing the volume, the volume to capacity ratio and the resulting LOS for each Regional roadway segment is included in the Appendix.

There are eight regional roadway segments that operate at LOS E and 84 segments that operate at LOS F under this scenario. Under Existing plus Project Buildout conditions, 64 of these Regional roadway segments operate at LOS E or F, so buildout of the County cumulatively with development in

incorporated cities and adjacent counties causes an additional 20 roadway segments to exceed the County's LOS threshold.

Table 4.6-25. Regional Roadway Segments Operating at LOS E or F under Buildout Cumulative plus Project Conditions

Roadway Segment		Buildout Cumulative plus Project V/C Ratio	LOS
Roadway Segments Operating at LOS F in the Buildout Cumulative plus Project Scenario			
US Highway 101	County Border to Crazy Horse Canyon Rd	1.136	F
US Highway 101	Crazy Horse Canyon Rd to San Miguel Canyon Rd	1.076	F
US Highway 101	San Miguel Canyon Rd to SR-156	1.597	F
US Highway 101	SR-156 to Pesante Rd	2.000	F
US Highway 101	Pesante Rd to Espinosa Rd	2.002	F
US Highway 101	Espinosa Rd to E Boronda Rd	1.556	F
US Highway 101	E Boronda Rd to W Laurel Dr	1.615	F
US Highway 101	W Laurel Dr to N Main St	1.967	F
US Highway 101	N Main St to E Market St	1.796	F
US Highway 101	E Market St to John St	1.831	F
US Highway 101	John St to S Sanborn Rd	1.569	F
US Highway 101	S Sanborn Rd to Airport Blvd	1.402	F
US Highway 101	Airport Blvd to Abbott St	1.495	F
US Highway 101	Spence Rd to Chualar Rd	1.090	F
US Highway 101	Chualar Rd to Old Stage Rd	1.729	F
US Highway 101	Old Stage Rd to 5th St	1.640	F
US Highway 101	5th St to S Alta St	1.531	F
US Highway 101	S Alta St to Camphora Rd	1.576	F
US Highway 101	Camphora Rd to Moranda Rd	1.606	F
US Highway 101	Moranda Rd to Front St	1.442	F
US Highway 101	Front St to Arroyo Seco Rd	1.321	F
US Highway 101	Arroyo Seco Rd to El Camino Real	1.053	F
SR-1	County Border to Salinas Rd	1.374	F
SR-1	Salinas Rd to Struve Rd	2.044	F
SR-1	Struve Rd to Dolan Rd	2.209	F
SR-1	Dolan Rd to Molera Rd	2.040	F
SR-1	Molera Rd to SR-183	1.960	F
SR-1	Imjin Pkwy to Light Fighter Dr	1.094	F
SR-1	Light Fighter Dr to Fremont Blvd	1.091	F
SR-1	Canyon del Rey Blvd to Del Monte Ave	1.330	F
SR-1	Del Monte Ave to N Fremont St	1.023	F

Roadway Segment		Buildout Cumulative plus Project V/C Ratio	LOS
SR-1	N Fremont St to Aguajito Rd	1.534	F
SR-1	Aguajito Rd to Munras Ave	1.114	F
SR-1	Holman Hwy to Carpenter St	1.346	F
SR-1	Carpenter St to Ocean Ave	2.208	F
SR-1	Ocean Ave to Carmel Valley Rd	1.457	F
SR-68 (Holman Highway)	Forest Ave to 17 Mile Dr	2.092	F
SR-68 (Holman Highway)	17 Mile Dr to Skyline Forest Dr	2.411	F
SR-68 (Holman Highway)	Skyline Forest Dr to CHOMP Dwy	2.405	F
SR-68 (Holman Highway)	CHOMP Dwy to SR-1	1.184	F
SR-68 (Monterey Salinas Highway)	SR-1 to Olmsted Rd	2.01	F
SR-68 (Monterey Salinas Highway)	Olmsted Rd to Canyon del Rey Blvd	2.16	F
SR-68 (Monterey Salinas Highway)	Canyon del Rey Blvd to Bit Rd	2.11	F
SR-68 (Monterey Salinas Highway)	Bit Rd to Laureles Grade Rd	2.13	F
SR-68 (Monterey Salinas Highway)	Laureles Grade Rd to Corral de Tierra	2.55	F
SR-68 (Monterey Salinas Highway)	Corral de Tierra to Portola Dr	1.56	F
SR-68 (Monterey Salinas Highway)	Reservation Rd to Spreckels Blvd	1.01	F
SR-68 (Monterey Salinas Highway)	Spreckels Blvd to E Blanco Rd	1.78	F
SR-146 (Front St)	US-101 to East St (on Front St)	1.99	F
SR-146 (Metz Rd)	East St to County Rd G-15	1.05	F
SR-183 (Castroville Rd)	Blackie Rd to Espinosa Rd	1.945	F
SR-183 (Castroville Rd)	Espinosa Rd to Cooper Rd	1.828	F
SR-183 (Castroville Rd)	Cooper Rd to S Davis Rd	1.211	F
SR-218 (Canyon del Rey Blvd)	SR-1 to Del Monte Blvd	1.386	F
SR-218 (Canyon del Rey Blvd)	Del Monte Blvd to Fremont Blvd	1.101	F
SR-218 (Canyon del Rey Blvd)	Fremont Blvd to Carlton Dr	1.753	F
SR-218 (Canyon del Rey Blvd)	Carlton Dr to SR-68	1.822	F
Foam St	Prescott Ave to Drake Ave	2.945	F
Foam St	Drake Ave to Lighthouse Ave	2.864	F
Lighthouse Ave	David Ave to Prescott Ave	1.197	F
Lighthouse Ave	Prescott Ave to Private Bolio Rd	1.893	F
Lighthouse Ave	Private Bolio Rd to Pacific St	1.638	F
Lighthouse Ave	Pacific St to Washington St	1.618	F
Del Monte Ave	Washington St to Camino Aguajito	1.865	F
Del Monte Ave	Camino Aguajito to Casa Verde Wy	1.940	F
Del Monte Ave	Casa Verde Wy to SR-1	2.932	F
Fremont St	Abrego St to Camino Aguajito	1.657	F
Munras Ave/Abrego St	Soledad Dr to Via Zaragoza	2.396	F

Roadway Segment		Buildout Cumulative plus Project V/C Ratio	LOS
Del Monte Blvd	SR-1 to Canyon del Rey Blvd	2.120	F
Del Monte Blvd	Canyon del Rey Blvd to Broadway Ave	1.793	F
Fremont Blvd	N Del Monte Blvd to SR-1	1.621	F
Del Monte Blvd	SR-1 to Reindollar Ave	2.065	F
Del Monte Blvd	Reindollar Ave to Reservation Rd	3.715	F
N Fremont St	Casa Verde Wy to SR-218	2.136	F
Sanborn Rd	US-101 to Abbott St	1.524	F
N Main St	San Juan Grade Rd to W Laurel Dr	1.423	F
N Main St	W Laurel Dr to E Bernal Dr	1.508	F
E Boronda Rd	US-101 to N Main St	2.692	F
John St	Abbott St to US-101	1.469	F
Market St	Davis Rd to N Main St	1.150	F
Davis Rd	W Laurel Dr to SR-183	1.54	F
Blanco Rd	S Davis Rd to W Alisal St	1.997	F
Blanco Rd	W Alisal St to SR-68	1.294	F
Blanco Rd	SR-68 to Abbott St	1.673	F
Roadway Segments Operating at LOS E in the Buildout Cumulative plus Project Scenario			
US Highway 101	Central Ave to Jolon Rd	0.900	E
SR-1	Del Monte Blvd to Reservation Rd	0.932	E
SR-1	Reservation Rd to Del Monte Blvd	0.961	E
SR-1	Remont Blvd to Canyon del Rey Blvd	0.947	E
SR-68 (Monterey Salinas Highway)	Portola Dr to Reservation Rd	0.967	E
SR-146 (East St)	Front St to Metz Rd	0.993	E
Munras Ave/Abrego St	Fremont St to Soledad Dr	0.883	E
N Fremont St	SR-1 to Casa Verde Wy	0.955	E

Source: Kimley-Horn and Associates, Inc.

Table 4.6-26 presents Buildout Cumulative plus Project roadway LOS on Regional roadways external to Monterey County. Traffic generated by buildout of the 2007 General Plan will produce inter-county travel between housing and jobs in Santa Cruz, San Benito, and Santa Clara counties, and to a lesser extent San Luis Obispo County. Buildout of the General Plan, cumulatively with development in incorporated cities in Monterey County and development in adjacent counties, causes seven segments to change from LOS D or better to a LOS E or F.

Table 4.6-26. Roadway Level of Service of Facilities External to Monterey County under Cumulative plus Project Buildout Conditions

Roadway Segment		Existing plus Project Buildout Conditions		Buildout Cumulative plus Project Conditions	
		V/C Ratio	LOS	V/C Ratio	LOS
Santa Clara County					
US Highway 101	Cochrane Rd to E Dunne Ave	0.820	D	1.618	F
US Highway 101	Masten Ave to Leavesley Rd/SR-152 West	0.824	D	1.305	F
US Highway 101	Monterey Rd to SR-25	0.964	E	1.485	F
SR-152	SR-156 to Merced County	0.634	C	1.177	F
Santa Cruz County					
SR-1	Soquel Ave to 41st St	1.071	F	1.586	F
SR-1	Airport Blvd to SR-152	0.731	C	1.392	F
SR-1	Harkings Slough Rd to SR-129	0.541	B	1.171	F
SR-1	SR-129 to Monterey County	0.423	B	0.878	D
SR-17	Santa Clara County to Granite Creek Rd	0.945	E	0.670	C
SR-129 (Riverside Rd)	Lakeview Rd to Carlton Rd	0.926	D	0.957	E
San Benito County					
US Highway 101	Santa Clara County to SR-129	0.809	D	1.019	F
SR-25 (Bolsa Rd)	Santa Clara County to SR-156	1.049	F	2.074	F
SR-156	Salinas Rd to Union Rd	1.718	F	1.988	F
San Luis Obispo County					
US Highway 101	Monterey County to San Miguel Ave	0.314	A	0.585	C

Source: Kimley-Horn and Associates, Inc.

Impact of Goods Movement on Roadway Level of Service

As described earlier, the county's current truck traffic generation is expected to increase through buildout of the General Plan. While the increase in freight movement is not significant enough to cause widespread capacity-related impacts, it will contribute large vehicle traffic to roadways and highways that are currently, or are projected to fall below the County's acceptable LOS standard and may cause the localized impacts on heavily

traveled freight routes and within industrialized areas where truck traffic originates.

Comparison with No Project Scenario

The No Project scenario represents buildout of the County to the year 2092 under the General Plan currently in effect (1982). Table 4.6-24 earlier compared the housing, population and employment forecasts between the 1982 and 2007 General Plans. The comparison indicated that buildout of the 2007 General Plan would result in a net increase in daily trips greater than what would be generated at buildout of the 1982 General Plan. Therefore the LOS impacts of buildout of the 2007 General Plan would be greater than those of the 1982 General Plan.

2007 General Plan Policies

The 2007 General Plan policies establish measures to minimize adverse impacts of roadway level of service impacts of development both individually and cumulatively. The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Buildout Cumulative plus Project scenario.

Significance Determination

Buildout of the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would increase traffic volumes on County roads, Regional roads, and regional roads external to the County. This added traffic would both cause roadway segments to exceed the County's LOS standard, and contribute traffic to roadways that exceed the LOS standard without development, and further degrade the performance measure.

Despite development contributions to county impacts (through countywide traffic impact fee), and regional impacts (through regional traffic impact fee) there will remain a funding shortfall for the improvement of County and Regional roads to achieve the County's LOS standard. Therefore this impact remains significant and unavoidable.

Mitigation Measures

Mitigation of the impacts described above to achieve a LOS D include:

- Widening County and Regional roadway from existing 2-lane facilities to 4, 6, or 8-lanes facilities;
- Expand existing intersections to include additional through and turning lanes;
- Install traffic signals;

- Grade-separate intersections of the junction between major streets;
- Widen state highway to accommodate additional travel lanes, provide shoulders, and auxiliary lanes between on and off-ramps; and
- Increase public transportation services by expanding MST's fleet, expand fixed-route services, increase headways, provide park and ride facilities, and implement new services including Bus Rapid Transit, and inter-city rail service.

Many of the mitigations for roadways segments are likely infeasible due to physical, topographical, and environmental constraints, as well the social and economic impacts related to the acquisition of commercial and residential property, or loss of access, and lack of community consensus for roadway capacity-enhancing projects. This construction would result in impacts to other resources, such as biological resources, air quality, noise, aesthetics and agricultural lands. The foremost constraint, however, is funding of transportation facilities. Federal, state and regional funding are limited, and most of these funds are used to maintain the transportation system. The County and TAMC are planning to implement Traffic Impact Fees to fund improvement projects, but the amount of the fees are limited for affordability and total fee burden reasons. Further, another source of funding, voter initiatives to increase sales tax to fund transportation projects, have failed recently, but may be an option in the future.

The County and regional fee programs will continuously be updated, adding additional priority projects to the programs as initial projects are completed, but the rate of project completion will not be able to outpace the rate of development growth.

The mitigation measures identified for the CVMP are recommended under 2030 Cumulative plus Project Conditions remain applicable in this scenario

Significance Conclusion

With buildout of the 2007 General Plan, and implementation of mitigation measures determined to be feasible, there would remain significant and unavoidable impacts on County roads, and Regional roads both within and external to Monterey County.

Air Traffic

Impact TRAN-4C: Buildout of the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would increase demand for air travel at the County's four airports or increase development within the approach and departure pattern of airports. (Less than Significant)

Impact of Development with Policies

The discussion of air traffic impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the Year 2030 Cumulative plus Project scenario.

Significance Determination

Buildout of the 2007 General Plan would result in an increase in demand for air travel. As stated earlier, airport utilization can double in annual passengers over current conditions. Additionally, land use growth proposed in the general Plan and specifically the Highway 68/Monterey Peninsula Airport Affordable Housing Overlay will not be located within airport flight paths, and will not be design in such a way as to become an incompatible land use (i.e., high rise buildings). No change in airport location is being proposed in the 2007 General Plan. (Less than Significant Impact).

Mitigation Measures

Impacts would be less than significant, therefore no mitigation measures are necessary.

Significance Conclusion

Buildout of the General Plan would increase the demand for the air travel. The General Plan contains policies to encourage safe operations of air facilities and land uses surrounding the airports that are consistent with airport operations. Airport passenger demand is significantly less than it was in 1978 and therefore can accommodate substantial increases without increasing the capacity of airports. Impacts of the General Plan policies under Buildout Cumulative plus Project are less than significant.

Roadway Hazards

Impact TRAN-4D: Growth in land uses allowed under the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would result in non-standard or hazardous designs or land uses that are incompatible with public facilities and adjoining land uses. (Less Than Significant)

Impact of Development with Policies

The discussion of roadway hazard impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to this scenario.

Significance Determination

Buildout of the 2007 General Plan by the year 2030 would result in non-standard or hazardous designs and incompatible facilities with adjoining land uses. The General Plan provides for policies to prevent or reduce these impacts by requiring roads to be designed to safety standards. These policies require new development to design facilities to County standards, and limit incompatible land uses. Therefore, the impact of roadway hazards with buildout of the 2007 General Plan is less than significant.

Mitigation Measures

No additional mitigation measures beyond the 2007 General Plan are necessary.

Significance Conclusion

Buildout of the General Plan would result in non-standard or hazardous transportation facility designs or land uses that are incompatible with public facilities. However, the 2007 General Plan contains policies to ensure that new development provides access and improvements to the county roadway system to meet County standards. It also contains policies to prevent incompatible land uses to avoid transportation conflicts and roadway hazards. Therefore, the impact is less than significant.

Emergency Access

Impact TRAN-4E: Buildout of the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would result in inadequate emergency access. (Significant and Unavoidable)

Impact of Development with Policies

The discussion of emergency access impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to the this scenario.

Significance Determination

Buildout of the 2007 General Plan under Buildout Cumulative plus Project conditions would result in inadequate emergency access due to increases in traffic that result in County and Regional roadways exceeding County LOS standards, and creating traffic congestion that slows emergency response time.

The General Plan policies discussed above address transportation related impacts to emergency response due to congestion, and design. However, even with the adoption of county and regional impact fees, and implementation of proposed transportation improvements at the County and Regional level, traffic impacts to County and Regional roadway level of service will remain significant and unavoidable, and thereby cause an impact to emergency response that significant and unavoidable.

Mitigation Measures

The mitigation measures described under the Existing plus Project Development to the Year 2030 are applicable to this scenario.

Significance Conclusion

The development allowed in the 2007 General Plan would generate traffic that would cause County and Regional roadways to exceed the County's LOS D standard, and contribute to roadways that exceed the standard without development, causing traffic congestion that would impact emergency response time. Mitigation includes developing emergency response route and connectivity plans, and requiring new development to implement these

plans, but will not mitigate LOS impacts on County and Regional roads. This is a significant and unavoidable impact.

Alternative Transportation

Impact TRAN-4F: Buildout of the 2007 General Plan, cumulatively with development in incorporated cities and adjacent counties, would conflict with adopted policies, plans, or programs supporting alternative transportation or generate pedestrian, bicycle, or transit travel demand that would not be accommodated by current pedestrian facilities, bicycle development plans, or long-range transit plans. (Less than Significant)

Impact of Development with Policies

The discussion of air traffic impacts in the Existing plus Project Development to the year 2030 scenario remains applicable in this scenario.

2007 General Plan Policies

The policies related to roadway level of service for development described in the Existing plus Project Development to the Year 2030 scenario apply to this scenario.

Significance Determination

Policies in the General Plan and Area Plans increase pedestrian, bicycle and transit-supportive facilities by both requiring and encouraging the construction of such facilities and land use patterns in new development. These policies provide support for, and do not conflict with, alternative modes of transportation. The transit-supportive land uses identified in the General Plan are consistent with MST's objectives.

Buildout of the General Plan, if consistent with policy, would increase the need for transit service with concentrations of development in existing transit-served corridors, community areas, and near incorporated cities. The increase in demand for transit service is consistent with MST's strategic goals of increasing transit ridership, expanding service, and introducing new services such as BRT in major corridors. Therefore, this impact is less than significant.

Mitigation Measures

No mitigation measures are necessary.

Significance Conclusion

The policies contained in the General Plan provide both requirements and encouragement of alternative mode infrastructure and facilities, and promote transit-support land use patterns. These polices support and do not conflict with existing facilities, policies, plans and programs. The development allowed under the General Plan will generate demand for pedestrian and bicycle facilities, and demand for transit services. These demands can be accommodated by ensuring development conforms to County policies and design standards, and are consistent with the goals and strategies of MST, the County's transit service provider. This is a less than significant impact.

4.6.4 Agriculture and Wine Corridor Plan

4.6.4.1 Abstract

The 2007 General Plan includes an Agriculture and Winery Corridor Plan (AWCP) intended to strike a balance between the wine grape production and wine processing capabilities within the County and maintain the viability of this industry. In order to encourage the development of the area's wine industry, the plan designates three winery corridors along the Salinas Valley and establishes land use policies and standards for the development of new wine-related facilities within the region.

The full buildout scenario of the AWCP would allow the development of 40 artisan wineries, 10 full-scale wineries and 10 tasting rooms along three corridors that extend through three Planning Areas (Toro, Central Salinas Valley, and South County) and include more than 80 miles of Salinas Valley roadways. The AWCP identifies the following three winery corridors (as shown in Exhibit 4.6.11):

1. **River Road Segment** – Consisting generally of River Road from Highway 68 south excluding the west side of the road between a point 500 feet north of Las Palmas and 1000 feet south of Pine Canyon (Salinas), Chualar River Road, Gonzales River Road, Foothill Road, Fort Romie Road, Paraiso Springs Road, Los Coches Road, Thorn Road, the lower section of Arroyo Seco Road, Elm Road south of Highway 101, Central Avenue from Elm Avenue south to Highway 101, and Hobson Road.
2. **Metz Road Segment** – Consisting generally of Metz Road from the City of Soledad south to Elm Road, and Elm Road from Metz Road to the City of Greenfield.
3. **Jolon Road Segment** – Consisting generally of Jolon Road from Highway 101 near King City south to Highway 101 north of Bradley, Cross Road, Gillett Road, Lockwood-Jolon Road from Cross Road to Gillett Road, and Interlake Road.

The AWCP is designed to expand the tourism and agricultural industries, which will in turn cause an increase in traffic including seasonal employee trips as well as truck trips and visitor trips. Buildout of the 2007 General Plan with implementation of the AWCP would potentially result in significant impacts on transportation if new vehicle trips generated by growth anticipated by the 2007 General Plan results in deficient roadway performance for any County roads identified within the AWCP. This section focuses on that impact.

Since the AWCP is included in the other scenarios described above, all other impacts are addressed.

4.6.4.2 Methodology

To determine impacts of buildout of the 2007 General Plan on Monterey County roadways, existing and projected roadway volumes are compared to Monterey County roadway LOS standards. Because peak visitor traffic associated with wine-related facilities typically occurs on weekends, impacts to County roads within the designated Wine Corridor were analyzed for weekday and weekend conditions. Three different analysis scenarios were prepared and are listed below:

- Existing plus Project Development to the Year 2030. This analysis is based on the existing roadway network (2008).
- 2030 Cumulative plus Project Conditions. This analysis is based on the roadway network that includes the TAMC and countywide capacity enhancing projects.
- Existing plus Project Buildout. This analysis is based on the roadway network that includes the TAMC and countywide capacity enhancing projects.

Because the forecasting methodology based on the AMBAG Model only produces weekday traffic projections, a weekday-to-weekend conversion factor was derived based on data from an area with comparable land uses and characteristics.

SR-29 is a north-south highway that runs through agricultural and winery region of Napa County, California, which is known for its established wine industry. This corridor was selected as a comparable because upon implementation of the AWCP the roads within the Monterey County Wine Corridor are expected to experience weekend traffic patterns similar to those of SR-29. The weekday-to-weekend factor was determined by comparing existing weekend traffic volumes along SR-29 to existing weekday volumes, resulting in a calculated weekday-to-weekend ratio. This ratio was used to project weekend volumes from the AMBAG Model weekday forecasts for roads within the Agricultural and Winery Corridor.

For each analysis scenario, the projected roadway segment volumes are compared to the County LOS thresholds, resulting in LOS conditions for each segment.

4.6.4.3 Impact Analysis

Existing plus Project Development to the Year 2030

Impact TRAN-5A: Growth in land uses allowed under the 2007 General Plan to the year 2030 would create adverse impacts to County roads within the Agricultural and Winery Corridor. (Less Than Significant With Mitigation).

Impact of Development with Policies

The projected level of service (LOS) on Agriculture and Winery Corridor roadways for the Existing plus Project Development to the Year 2030 are shown in Table 4.6-27. This analysis is based on the existing 2008 roadway network. This table compares the 2030 to existing conditions. Two segments exceed the LOS D standard and operate at LOS F during both weekday and weekend conditions. Neither of these segments is deficient under existing conditions.

Table 4.6-27. County and Regional Roadway Segments Level of Service under Existing plus Project Development to the Year 2030 Conditions

	Existing Conditions				Existing plus Project Development to the Year 2030			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
CENTRAL / ARROYO SECO / RIVER ROAD SEGMENT								
SR-68 (Monterey Salinas Highway)								
Portola Dr to Reservation Rd	0.48	C	0.53	C	0.48	C	0.53	C
Reservation Rd to Spreckels Blvd	0.48	C	0.53	C	0.43	B	0.48	C
County Road G16 (Carmel Valley Road/Arroyo Seco Rd/Elm Ave)								
Carmel Valley Rd to Elm Ave	0.05	C	0.06	C	0.09	C	0.10	C
Arroyo Seco Rd to Central Ave	0.04	C	0.04	C	0.06	C	0.07	C
County Road G17 (Reservation Rd/River Rd/Ft Romie Rd/Arroyo Seco Rd)								
SR-68 to Las Palmas Rd	0.48	C	0.53	D	0.60	D	0.67	D

	Existing Conditions				Existing plus Project Development to the Year 2030			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
Las Palmas Rd to Las Palmas Pkwy	0.81	D	0.90	D	1.01	F	1.12	F
Las Palmas Pkwy to Pine Canyon Rd	0.43	C	0.48	C	0.51	D	0.56	D
Pine Canyon Rd to Chualar River Rd	0.42	C	0.46	C	0.49	D	0.54	D
Chualar River Rd to Gonzales River Rd	0.08	C	0.09	C	0.10	C	0.11	C
Gonzalez River Rd to Foothill Rd	0.06	C	0.07	C	0.07	C	0.08	C
Foothill Rd to Arroyo Seco Rd	0.19	C	0.21	C	0.27	C	0.30	C
Ft Romie Rd to Elm Ave	0.20	C	0.22	C	0.21	C	0.23	C
Alta St								
Old Stage Rd to Gonzales City Line	0.44	C	0.49	D	0.44	C	0.49	D
Arroyo Seco Rd								
Fort Romie Rd to US-101	0.28	C	0.31	C	0.37	C	0.41	C
Central Ave								
Elm Ave to US-101	0.05	C	0.05	C	0.07	C	0.07	C
Chualar River Rd								
River Rd to Foletta Rd	0.33	C	0.36	C	0.34	C	0.38	D
Gonzales River Rd								
River Rd to Alta St	0.20	C	0.22	C	0.21	C	0.24	C
Spreckels Blvd								
SR-68 to Harkins Rd	0.48	D	0.54	D	0.47	C	0.53	D
METZ ROAD SEGMENT								
SR-146								
East St to County Road G-15 (on Metz Rd)	0.22	C	0.24	C	0.23	C	0.25	C
County Road G-15 to Stonewall Canyon Rd	0.22	C	0.24	C	0.23	C	0.26	C
County Road G15 (Metz Rd)								
SR-146 to Elm Ave	0.07	C	0.08	C	0.08	C	0.08	C
Elm Ave to Spreckels Rd	0.05	C	0.06	C	0.07	C	0.08	C
County Road G16 (Carmel Valley Road/Arroyo Seco Rd/Elm Ave)								
US-101 to Metz Rd	0.10	C	0.11	C	0.11	C	0.12	C
JOLON ROAD SEGMENT								

	Existing Conditions				Existing plus Project Development to the Year 2030			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
County Road G14 (Jolon Rd/Interlake Rd)								
US-101 to San Lucas Rd	0.58	D	0.65	D	1.06	F	1.18	F
San Lucas Rd to Lockwood	0.10	C	0.11	C	0.13	C	0.15	C
Lockwood to County Border	0.02	C	0.02	C	0.02	C	0.02	C
County Road G18 (Jolon Rd)								
Lockwood to US-101	0.06	C	0.07	C	0.08	C	0.09	C
Lockwood-San Lucas Rd								
US-101 to Jolon Rd	0.03	C	0.04	C	0.04	C	0.05	C

Source: Kimley-Horn and Associates, Inc.

Impact of Goods Movement

The land uses allowed in the AWCP under the 2007 General Plan will generate the need to move agricultural products throughout the corridor and the region. This movement is primarily through the use of trucks, but also through the use of aircraft. According to the AWCP, currently 65-70% of the grape production is shipped out of Monterey County to wineries elsewhere, whereas only 5% of wines produced are produced as a Monterey appellation. This is because the Monterey wine growing region has a high ratio of vineyards to wineries (over 1,900 vineyard acres to the winery) and grows more grapes annually than can be produced into wine. Therefore, the grapes are sold to wineries in other California regions.

With buildout of the uses allowed in the AWCP, the area will see an increase in wineries and wine producing facilities without a significant increase in the acres of vineyards. The increase in wine producing facilities will increase the amount of trucking that remains internal to the corridor and traveling shorter distances, thus reducing the impact of trucking on regional roadways outside of the corridor. Truck trips are expected to increase within the corridor. This increase in trips is addressed in the roadway level of service analysis described above.

Impact of Special Events

The AWCP allows for special events within the corridor that would attract additional visitors and employees. These special events include industry-wide events that encompass all of the uses within the corridor and promote visitation to the corridor, winery-related events (with up to 150 people per event) such as

fund raising events, dinners and weddings, and private events such as corporate meetings or private parties.

Larger events that would attract 500 or more visitors within the corridor are required to obtain a separate permit that involves review of the event conditions by the Sheriff's Department, Fire and Public Works relative to public health and safety. If this review results in a determination that police officers will be required to maintain order and for traffic control, the event sponsor will be required to arrange and pay for police staff. The event sponsor is also required to submit plans to the county identifying proposed location(s) and availability for off-site parking to support the number of persons anticipated at events.

2030 Cumulative plus Project Conditions

Impact of Development with Policies

The projected level of service (LOS) on Agriculture and Winery Corridor roadways for the 2030 Cumulative plus Project are shown in **Table 4.6-28**. This analysis is based on the future roadway that includes the TAMC and countywide capacity enhancements. This scenario is compared to the Existing plus Project Development to the Year 2030 to determine impacts of the AWCP when combined with cumulative traffic.

There is one segment that operates at LOS E (Spreckels Boulevard) and one segment that operates at LOS F (County Road G14) during either weekday or weekend conditions under this scenario. Additionally, one of the impacted segments in the Existing plus Project scenario would meet the County's LOS standard in the Buildout scenario because this two-lane segment of roadway would be widened to four lanes under the County's future capacity enhancements, as described in the methodology section.

Table 4.6-28. County and Regional Roadway Segments Level of Service under 2030 Cumulative Conditions

	Existing plus Project Development to the Year 2030				2030 Cumulative plus Project			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
CENTRAL / ARROYO SECO / RIVER ROAD SEGMENT								
SR-68 (Monterey Salinas Highway)								
Portola Dr to Reservation Rd	0.48	C	0.53	C	0.59	C	0.66	C
Reservation Rd to Spreckels Blvd	0.43	B	0.48	C	0.61	C	0.67	C
County Road G16 (Carmel Valley Road/Arroyo Seco Rd/Elm Ave)								
Carmel Valley Rd to Elm Ave	0.09	C	0.10	C	0.08	C	0.09	C

Roadway Segment	Existing plus Project Development to the Year 2030				2030 Cumulative plus Project			
	Weekday		Weekend		Weekday		Weekend	
	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
Arroyo Seco Rd to Central Ave	0.06	C	0.07	C	0.06	C	0.06	C
County Road G17 (Reservation Rd/River Rd/Ft Romie Rd/Arroyo Seco Rd)								
SR-68 to Las Palmas Rd	0.60	D	0.67	D	0.61	D	0.68	D
Las Palmas Rd to Las Palmas Pkwy	1.01	F	1.12	F	0.48	C	0.54	D
Las Palmas Pkwy to Pine Canyon Rd	0.51	D	0.56	D	0.51	D	0.56	D
Pine Canyon Rd to Chualar River Rd	0.49	D	0.54	D	0.46	C	0.51	D
Chualar River Rd to Gonzales River Rd	0.10	C	0.11	C	0.13	C	0.14	C
Gonzalez River Rd to Foothill Rd	0.07	C	0.08	C	0.08	C	0.09	C
Foothill Rd to Arroyo Seco Rd	0.27	C	0.30	C	0.28	C	0.31	C
Ft Romie Rd to Elm Ave	0.21	C	0.23	C	0.25	C	0.28	C
Alta St								
Old Stage Rd to Gonzales City Line	0.44	C	0.49	D	0.65	D	0.72	D
Arroyo Seco Rd								
Fort Romie Rd to US-101	0.37	C	0.41	C	0.40	C	0.44	C
Central Ave								
Elm Ave to US-101	0.07	C	0.07	C	0.05	C	0.06	C
Chualar River Rd								
River Rd to Foletta Rd	0.34	C	0.38	D	0.48	D	0.54	D
Gonzales River Rd								
River Rd to Alta St	0.21	C	0.24	C	0.20	C	0.22	C
Spreckels Blvd								
SR-68 to Harkins Rd	0.47	C	0.53	D	0.88	D	0.98	E
METZ ROAD SEGMENT								
SR-146								
East St to County Road G-15 (on Metz Rd)	0.23	C	0.25	C	0.68	D	0.75	D
County Road G-15 to Stonewall Canyon Rd	0.23	C	0.26	C	0.25	C	0.27	C
County Road G15 (Metz Rd)								
SR-146 to Elm Ave	0.08	C	0.08	C	0.10	C	0.11	C
Elm Ave to Spreckels Rd	0.07	C	0.08	C	0.17	C	0.19	C
County Road G16								

	Existing plus Project Development to the Year 2030				2030 Cumulative plus Project			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
(Carmel Valley Road/Arroyo Seco Rd/Elm Ave)								
US-101 to Metz Rd	0.11	C	0.12	C	0.12	C	0.14	C
JOLON ROAD SEGMENT								
County Road G14 (Jolon Rd/Interlake Rd)								
US-101 to San Lucas Rd	1.06	F	1.18	F	1.08	F	1.20	F
San Lucas Rd to Lockwood	0.13	C	0.15	C	0.16	C	0.18	C
Lockwood to County Border	0.02	C	0.02	C	0.05	C	0.05	C
County Road G18 (Jolon Rd)								
Lockwood to US-101	0.08	C	0.09	C	0.13	C	0.15	C
Lockwood-San Lucas Rd								
US-101 to Jolon Rd	0.04	C	0.05	C	0.06	C	0.07	C

Source: Kimley-Horn and Associates, Inc.

Area Plan Policies

The Agriculture and Winery Corridor Plan (AWCP) policies and design standards summarized below set forth measures to avoid and minimize adverse impacts to roads located in the Winery Corridor.

Agricultural Winery Corridor Plan

The AWCP requires that road improvements within the corridor be designed to retain the rural character of the area and should be limited to enhancing the scenic corridor and promoting safe circulation. AWCP Section 3.5 (parking regulations) establishes parking standards for developments in the planning area, while AWCP Section 3.7 requires that access to facilities shall be designed to meet safe sight distance standards as determined by the Monterey County Public Works department. Development guidelines in Section 3.6 require permits for special events to address off-site parking and traffic control. Section 4.5 (financing plan) includes the establishment of Area Capital Improvement and Financing Plans (CIFP) to fund roadway improvements to enhance safety and to maintain the LOS standard established in the County General Plan.

Significance Determination

Cumulative development and land use activities in the proposed 2007 General Plan within the 2030 planning horizon would result in two roadway segments exceeding the LOS D standard, or adding traffic to roadway segments that are already exceeding the standard. This is considered a significant impact.

Mitigation Measures

Mitigation Measure TRAN-5A: The roadway segments exceeding LOS standards are two-lane rural roads that provide left turn lanes at some intersections. These segments include County Road G14 between US 101 and San Lucas Road, and Spreckels Boulevard between SR-68 and Harkins Road. Improvement of these segments would be funded through a combination of project-specific mitigation for individual developments, and through a Capital Improvement and Financing Plan fair-share funding mechanism established for the Corridor by the Public Works Department. These improvements would be implemented when:

1. A proposed development's project-specific assessment identifies a direct impact to the facility in terms of either LOS or safety.
2. A proposed development gains access from an intersection within the segment.
3. A corridor-wide nexus study prepared for the required Capital Improvement and Financing Plan identifies the level of development that can occur before triggering the improvements.

To maintain the rural character of the area, there are no plans to widen these roadways to four lane facilities. Therefore, the capacity of these segments will be increased by:

1. Providing left turn lanes at intersections without left turn lanes and where the frequency of turning vehicles affects through vehicle movement; and/or
2. Increasing the width of the roadway shoulder at intersections to allow vehicles to pass turning vehicles; and/or
3. Constructing passing lanes as determined in the Capital Improvement and Financing Plan.

Significance Conclusion

Development of the 2007 General Plan through the year 2030 is projected to result in adverse impacts to county roads within the Wine Corridor. The impacts can be mitigated through implementation of rural highway capacity and safety improvements focused at intersections without the need to widen roadways. These mitigations will be implemented through a combination of project-specific mitigation for individual developments, and through a

Capital Improvement and Financing Plan fair-share funding mechanism. Therefore, this impact is less than significant.

Existing plus Project Buildout of the General Plan

Impact TRAN-5B: Buildout of the 2007 General Plan would create adverse impacts to County roads within the Agricultural Winery Corridor. (Less than Significant).

Impact of Development with Policies

The resulting level of service for each corridor segment is presented in Table 4.6-29. Two segments operate at LOS E on weekdays or weekends and two segments operate at LOS F on weekdays or weekends under this scenario. Under existing conditions, all of these segments operate at LOS D or better, so buildout of the General Plan and AWCP in the year 2092 causes four roadway segments along the corridor to exceed the county's LOS standard. This scenario includes the TAMC and County capacity enhancements described earlier, one of which affects the Wine Corridor. Implementation of these projects would improve the LOS at one of the deficient roadway segments.

Table 4.6-29. County and Regional Roadway Segments Level of Service under Existing plus Project Buildout Conditions

	Existing Conditions				Existing plus Project Buildout			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
CENTRAL / ARROYO SECO / RIVER ROAD SEGMENT								
SR-68 (Monterey Salinas Highway)								
Portola Dr to Reservation Rd	0.48	C	0.53	C	0.6	C	0.64	C
Reservation Rd to Spreckels Blvd	0.48	C	0.53	C	0.6	C	0.62	C
County Road G16 (Arroyo Seco Rd/Elm Ave)								
Carmel Valley Rd to Elm Ave	0.05	C	0.06	C	0.1	C	0.15	C
Arroyo Seco Rd to Central Ave	0.04	C	0.04	C	0.1	C	0.11	C
County Road G17 (River Rd/Ft Romie Rd/Arroyo Seco Rd)								
SR-68 to Las Palmas Rd	0.48	C	0.53	D	1.0	F	1.16	F

	Existing Conditions				Existing plus Project Buildout			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
Las Palmas Rd to Las Palmas Pkwy	0.81	D	0.90	D	0.55	C	0.64	D
Las Palmas Pkwy to Pine Canyon Rd	0.43	C	0.48	C	0.9	D	0.99	E
Pine Canyon Rd to Chualar River Rd	0.42	C	0.46	C	0.9	D	1.00	E
Chualar River Rd to Gonzales River Rd	0.08	C	0.09	C	0.2	C	0.18	C
Gonzalez River Rd to Foothill Rd	0.06	C	0.07	C	0.1	C	0.11	C
Foothill Rd to Arroyo Seco Rd	0.19	C	0.21	C	0.4	C	0.40	C
Ft Romie Rd to Elm Ave	0.20	C	0.22	C	0.2	C	0.26	C
Alta St								
Old Stage Rd to Gonzales City Line	0.44	C	0.49	D	0.5	C	0.51	D
Arroyo Seco Rd								
Fort Romie Rd to US-101	0.28	C	0.31	C	0.5	D	0.55	D
Central Ave								
Elm Ave to US-101	0.05	C	0.05	C	0.1	C	0.09	C
Chualar River Rd								
River Rd to Foletta Rd	0.33	C	0.36	C	0.4	D	0.43	D
Gonzales River Rd								
River Rd to Alta St	0.20	C	0.22	C	0.2	C	0.27	C
Spreckels Blvd								
SR-68 to Harkins Rd	0.48	D	0.54	D	0.5	D	0.56	D
METZ ROAD SEGMENT								
SR-146								
East St to County Road G-15 (on Metz Rd)	0.22	C	0.24	C	0.2	C	0.26	C
County Road G-15 to Stonewall Canyon Rd	0.22	C	0.24	C	0.3	C	0.29	C
County Road G15 (Metz Rd)								
SR-146 to Elm Ave	0.07	C	0.08	C	0.1	C	0.09	C
Elm Ave to Spreckels Rd	0.05	C	0.06	C	0.1	C	0.09	C

	Existing Conditions				Existing plus Project Buildout			
	Weekday		Weekend		Weekday		Weekend	
Roadway Segment	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS
County Road G16 (Elm Ave)								
US-101 to Metz Rd	0.10	C	0.11	C	0.1	C	0.13	C
JOLON ROAD SEGMENT								
County Road G14 (Jolon Rd/Interlake Rd)								
US-101 to San Lucas Rd	0.58	D	0.65	D	1.7	F	1.94	F
San Lucas Rd to Lockwood	0.10	C	0.11	C	0.1	C	0.14	C
Lockwood to County Border	0.02	C	0.02	C	0.0	C	0.04	C
County Road G18 (Jolon Rd)								
Lockwood to US-101	0.06	C	0.07	C	0.1	C	0.11	C
Lockwood-San Lucas Rd								
US-101 to Jolon Rd	0.03	C	0.04	C	0.1	C	0.06	C

Source: Kimley-Horn and Associates, Inc.

Area Plan Policies

The Agriculture Winery Corridor Plan policies mentioned above are applicable to this scenario.

Significance Determination

Buildout by 2092 would result in LOS E/F for four roadway segments within the Winery Corridor. These roads would experience increased congestion due to the changes in land uses and the intensity of land uses. Implementation of the planned County capacity enhancement improve one segment to a LOS D (widening Road G17 from Las Palmas Road to Las Palmas Parkway), but the policies of the AWCP discourage widening roadways to preserve their rural character.

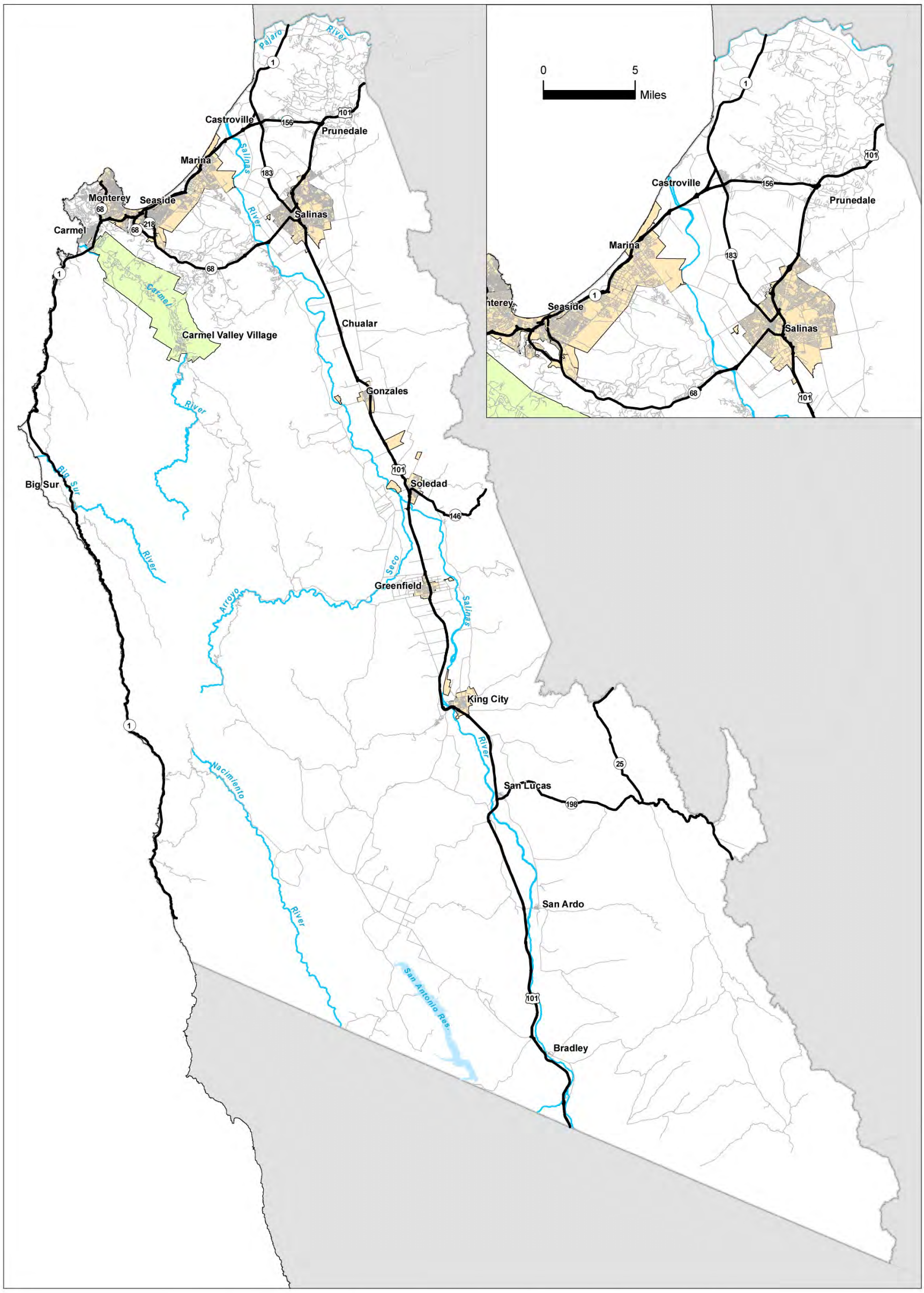
Mitigation Measures

Mitigation measure TRAN-5A is applicable to this scenario.

Significance Conclusion

Buildout of the 2007 General Plan is projected to result in adverse impacts to county roads within the Wine Corridor. The impacts can be mitigated through implementation of rural highway capacity and safety improvements focused at intersections without the need to widen roadways, thus preserving the corridor's rural character. These mitigations will be implemented

through a combination of project-specific mitigation for individual developments, and through a Capital Improvement and Financing Plan fair-share funding mechanism. Therefore, this impact is less than significant.



Monterey County Existing Highways and Roads

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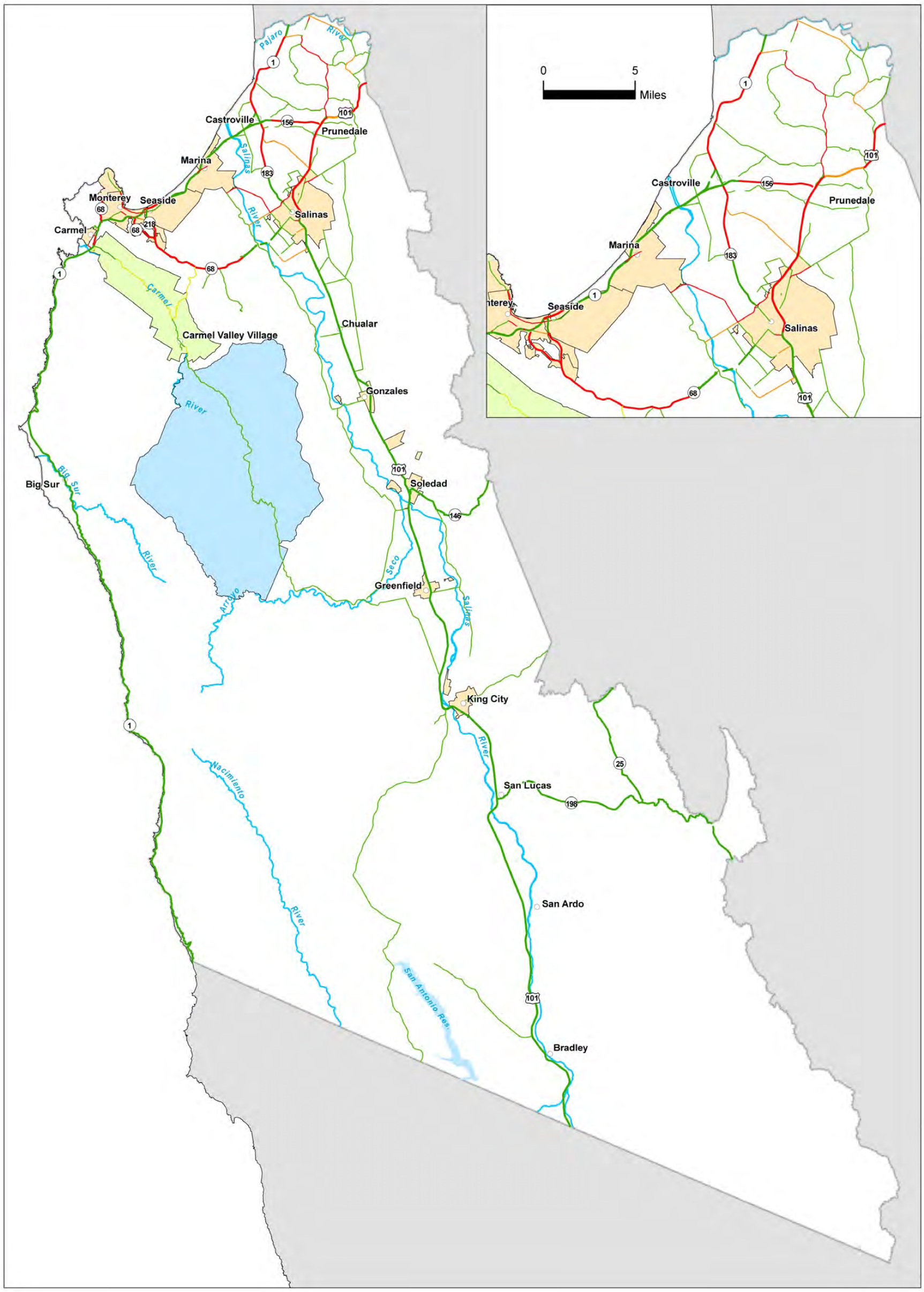
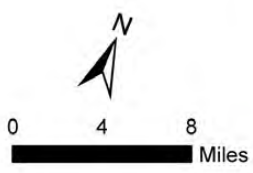
Exhibit 4.6-1
Existing Highways and Roads



Existing Conditions Roadway Level of Service



Roadway Level of Service

- LOS A - C (Roadways)
- LOS A - C (State Routes)
- LOS D (Carmel Valley and Cachagua Roadways)
- LOS E (Roadways)
- LOS E (State Routes)
- LOS F (Roadways)
- LOS F (State Routes)
- City Limits
- Carmel Valley Master Plan
- Cachagua
- Major Streams

Sources:
California Spatial Information Library.
Kimley-Horn and Associates

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Exhibit 4.6-2
Roadway Level of Service

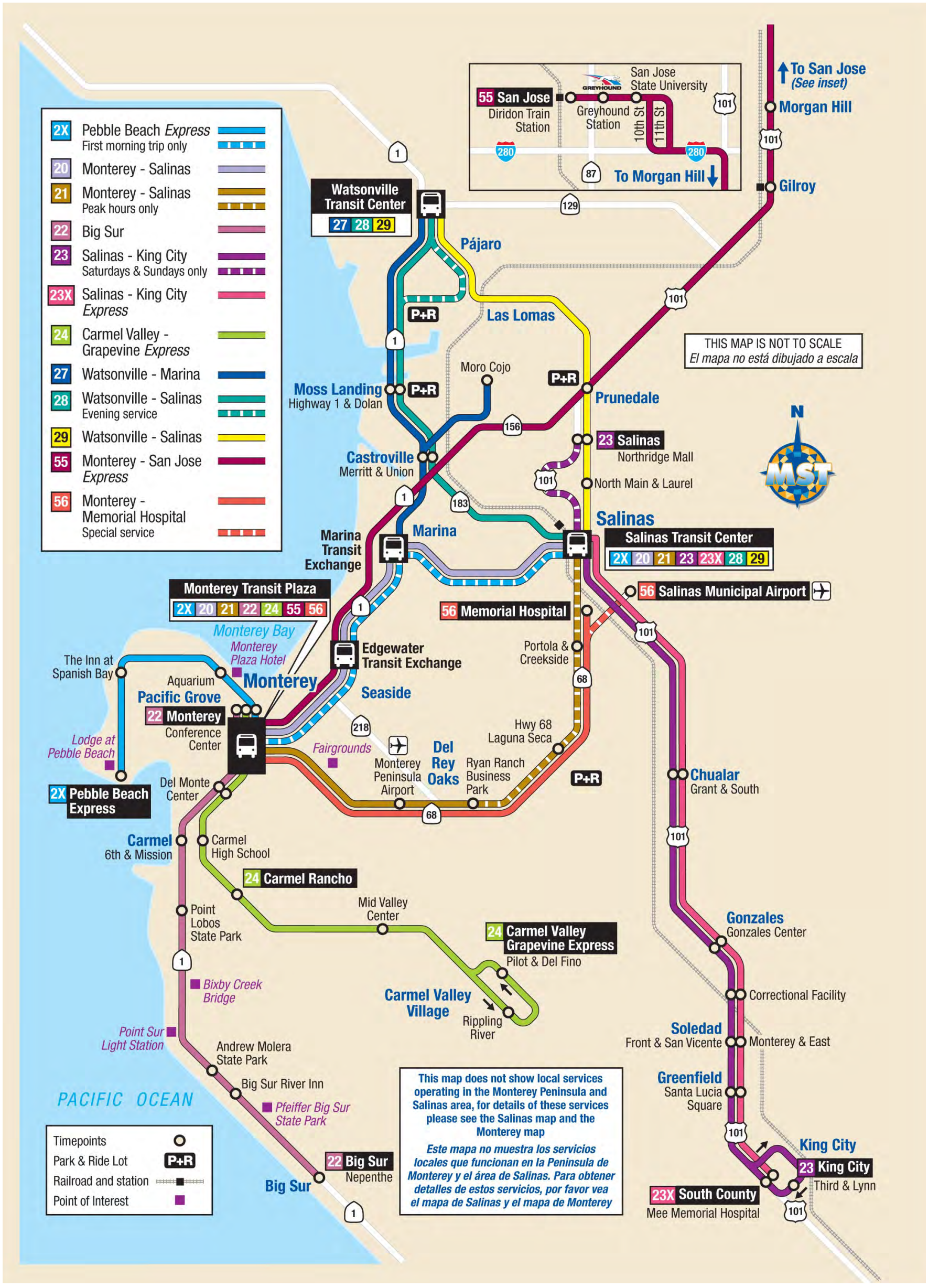

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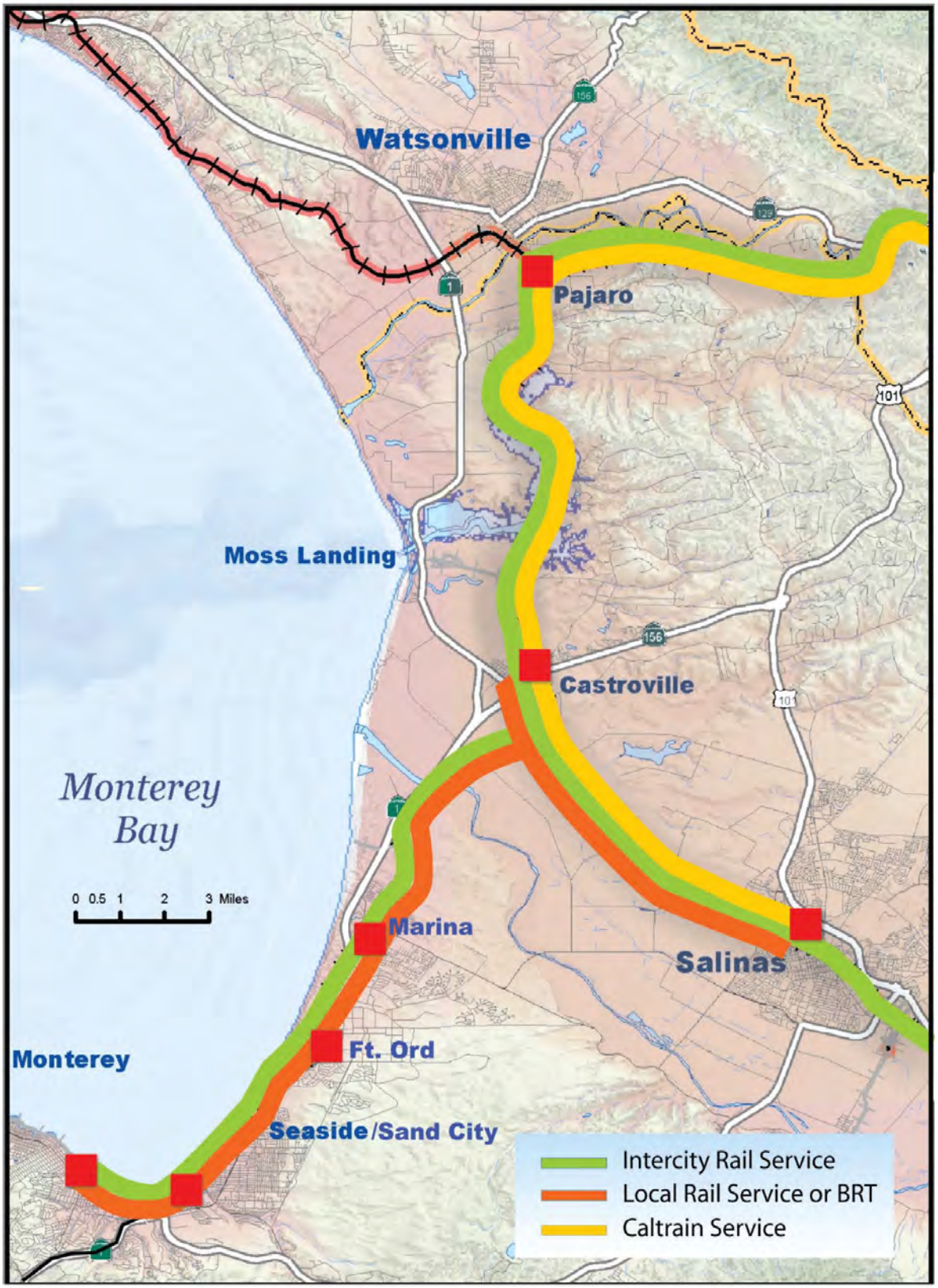
Exhibit 4.6-3
Transit Options



Passenger Rail Service Options Undergoing Study

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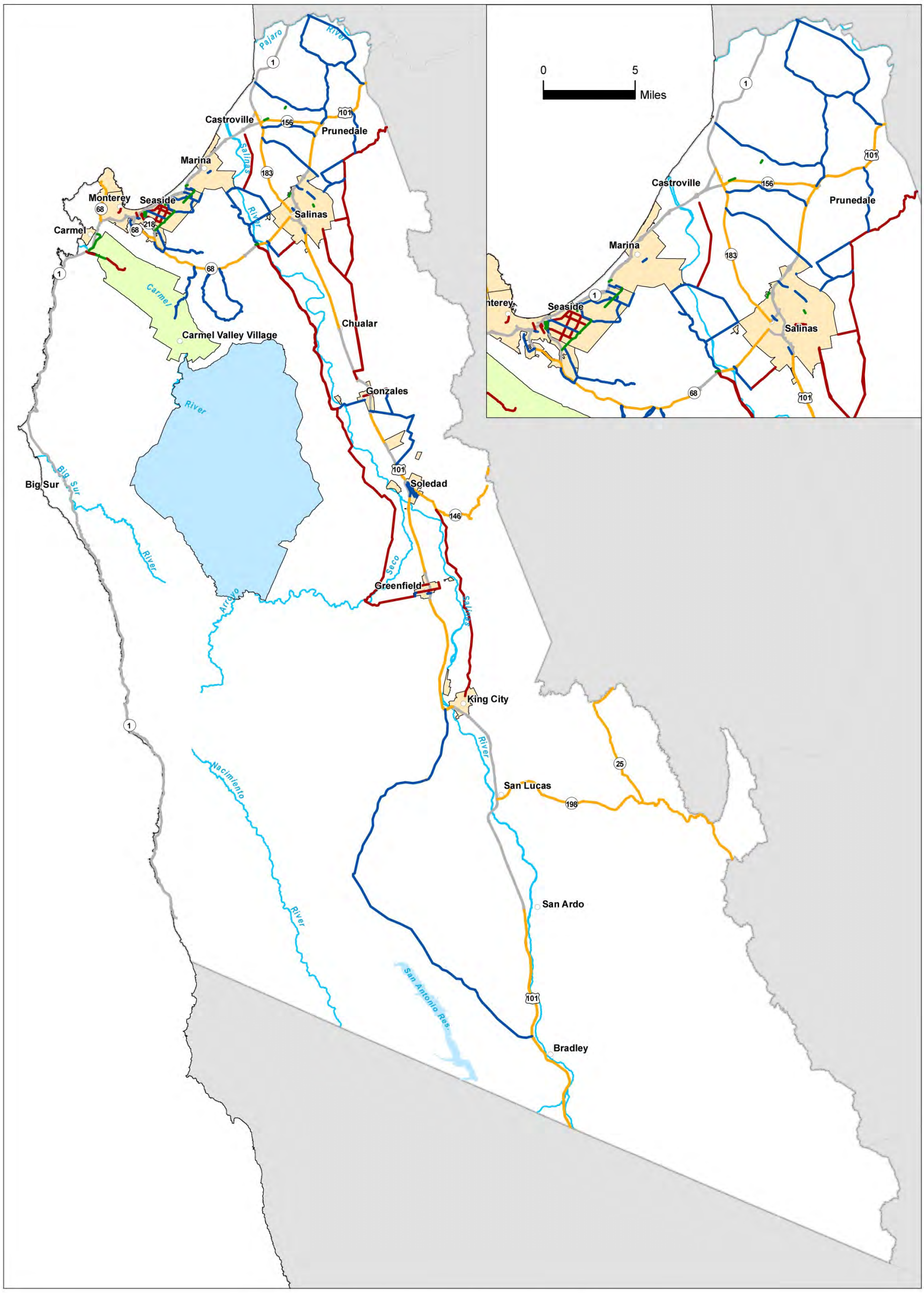
Exhibit 4.6-4
Passenger Rail Service Options



Existing Monterey County Bikeways

N

0 4 8 Miles

Bikeway Classification

- Class I Bikeways
- Class 2 Bikeways
- Class 3 Bikeways
- Caltrans Routes
- State Routes
- City Limits
- Major Streams

Sources:
California Spatial Information Library
Transportation Agency for Monterey County
Kimley-Horn and Associates

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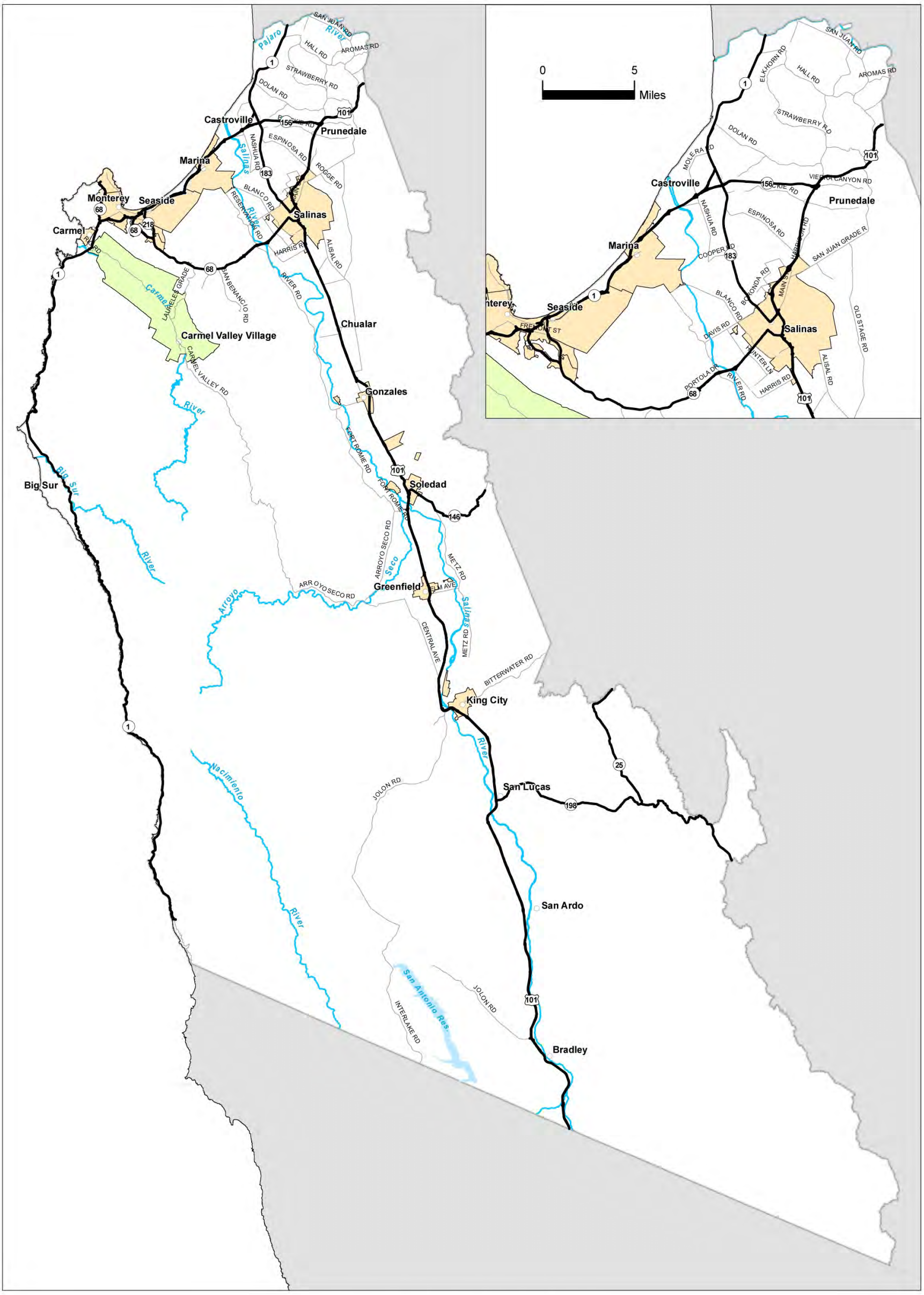
Exhibit 4.6-5
Existing Bikeways



Study Area Network

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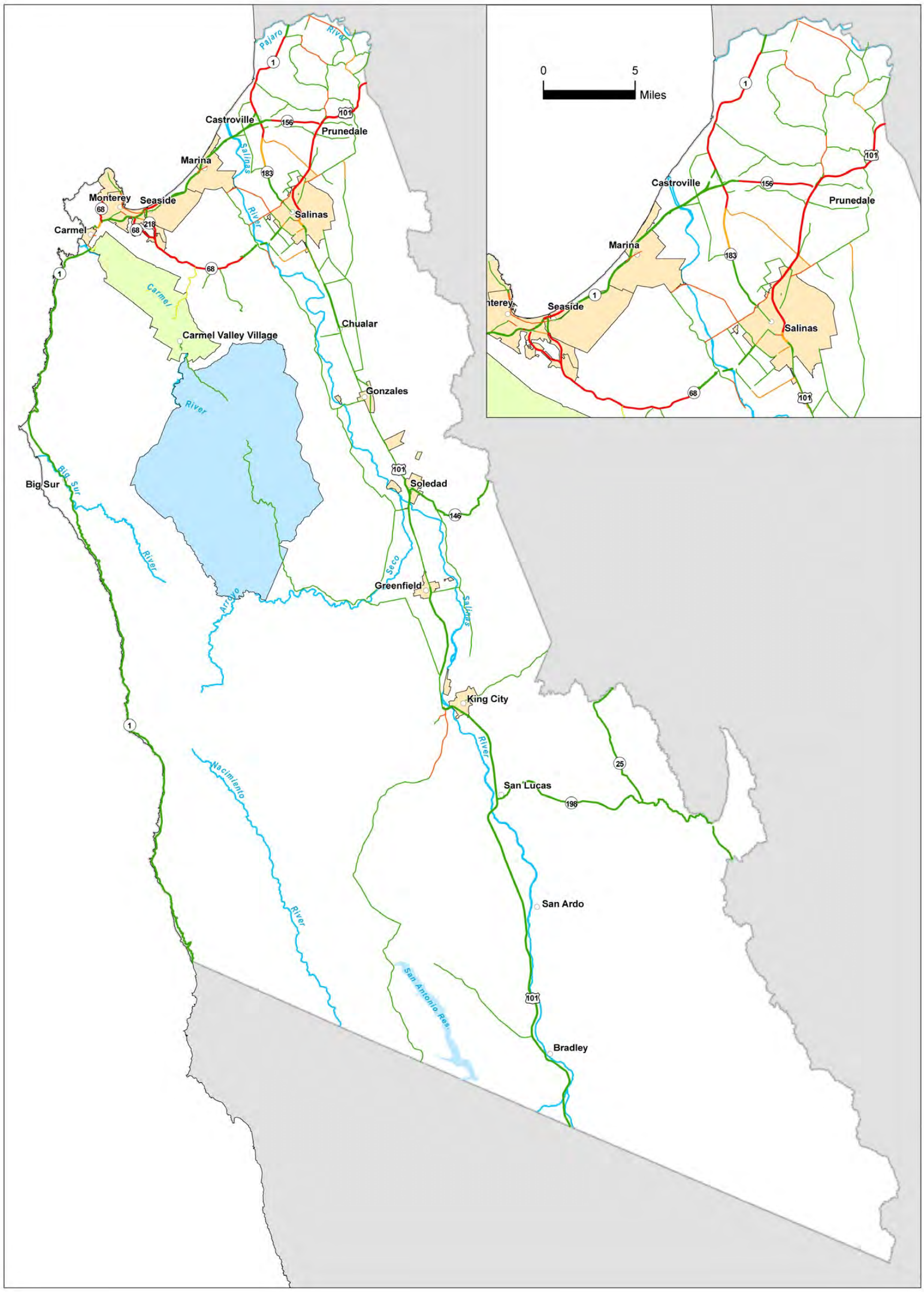
Exhibit 4.6-6
Study Area Network



Existing Plus Project (Horizon Year 2030) Roadway Level of Service

N

0 4 8 Miles

Roadway Level of Service

- LOS A - C (Roadways)
- LOS A - C (State Routes)
- LOS D (Carmel Valley and Cachagua Roadways)
- LOS E (Roadways)
- LOS E (State Routes)
- LOS F (Roadways)
- LOS F (State Routes)
- City Limits
- Carmel Valley Master Plan
- Cachagua
- Major Streams

Sources:
California Spatial Information Library.
Kimley-Horn and Associates

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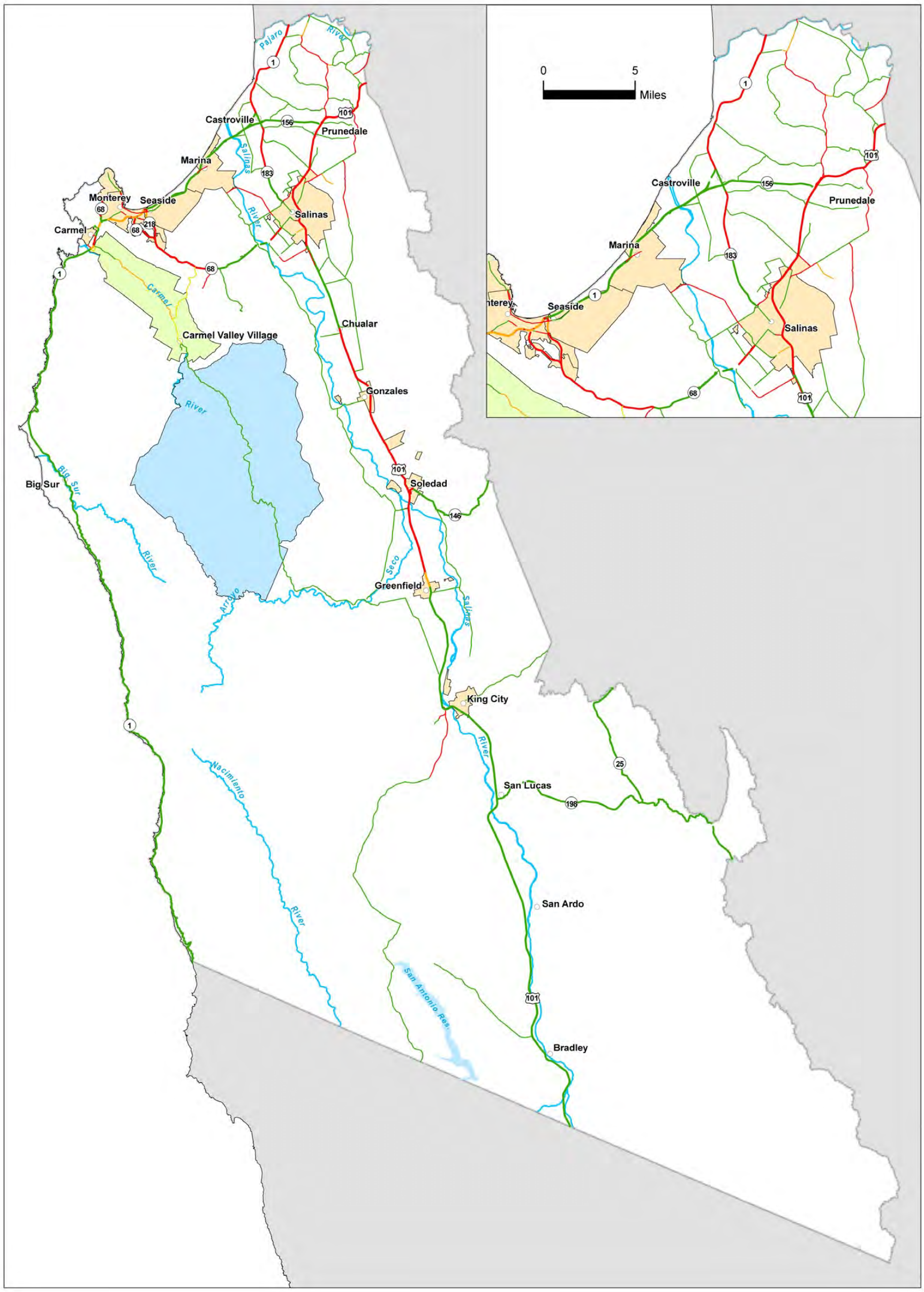
Exhibit 4.6-7
Existing Plus Project 2030 Roadway Level of Service



2030 Cumulative Plus Project Conditions Roadway Level of Service

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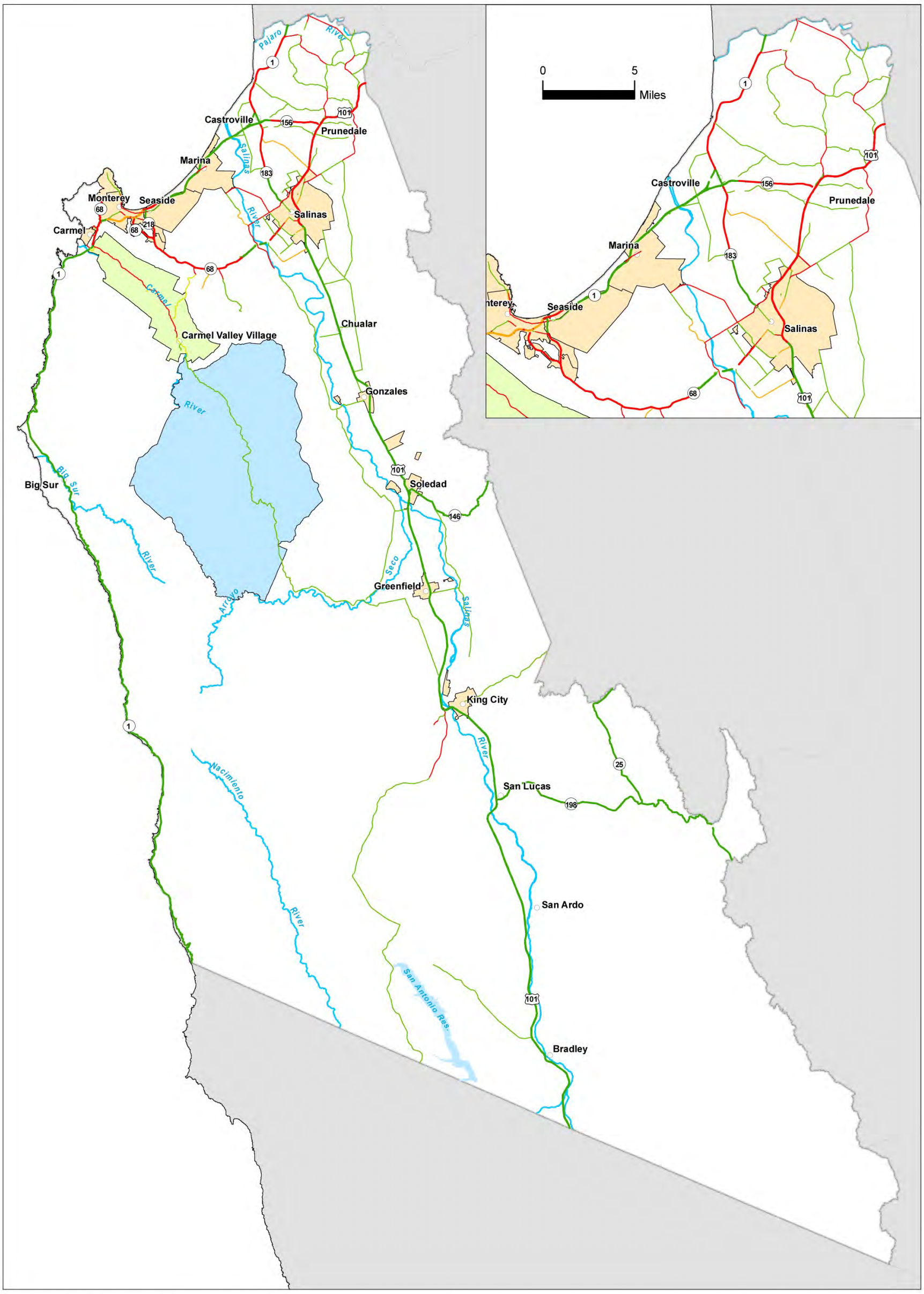
Exhibit 4.6-8
2030 Cumulative Plus Project Roadway Level of Service



Existing Plus Project (Buildout Horizon) Roadway Level of Service

N

0 4 8 Miles

Roadway Level of Service

- LOS A - C (Roadways)
- LOS A - C (State Routes)
- LOS D (Carmel Valley and Cachagua Roadways)
- LOS E (Roadways)
- LOS E (State Routes)
- LOS F (Roadways)
- LOS F (State Routes)
- City Limits
- Carmel Valley Master Plan
- Cachagua
- Major Streams

Sources:
California Spatial Information Library.
Kimley-Horn and Associates

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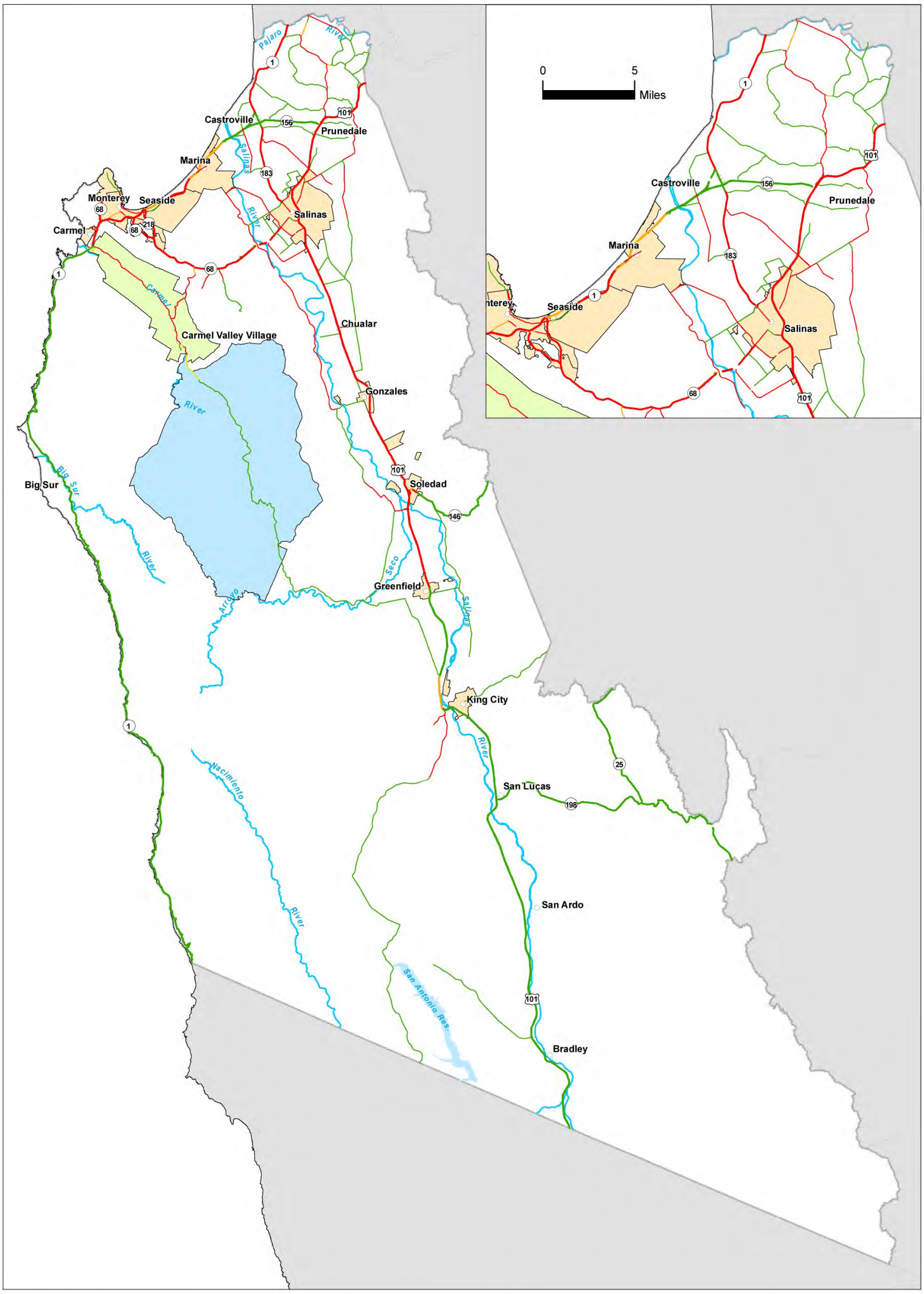
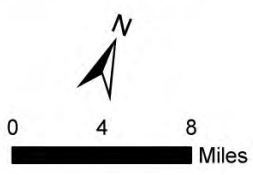
Exhibit 4.6-9
Existing Plus Project Roadway Level of Service



Buildout Cumulative Plus Project Conditions Roadway Level of Service



Roadway Level of Service

- LOS A - C (Roadways)
- LOS A - C (State Routes)
- LOS D (Carmel Valley and Cachagua Roadways)
- LOS E (Roadways)
- LOS E (State Routes)
- LOS F (Roadways)
- LOS F (State Routes)
- City Limits
- Carmel Valley Master Plan
- Cachagua
- Major Streams

Sources:
California Spatial Information Library.
Kimley-Horn and Associates

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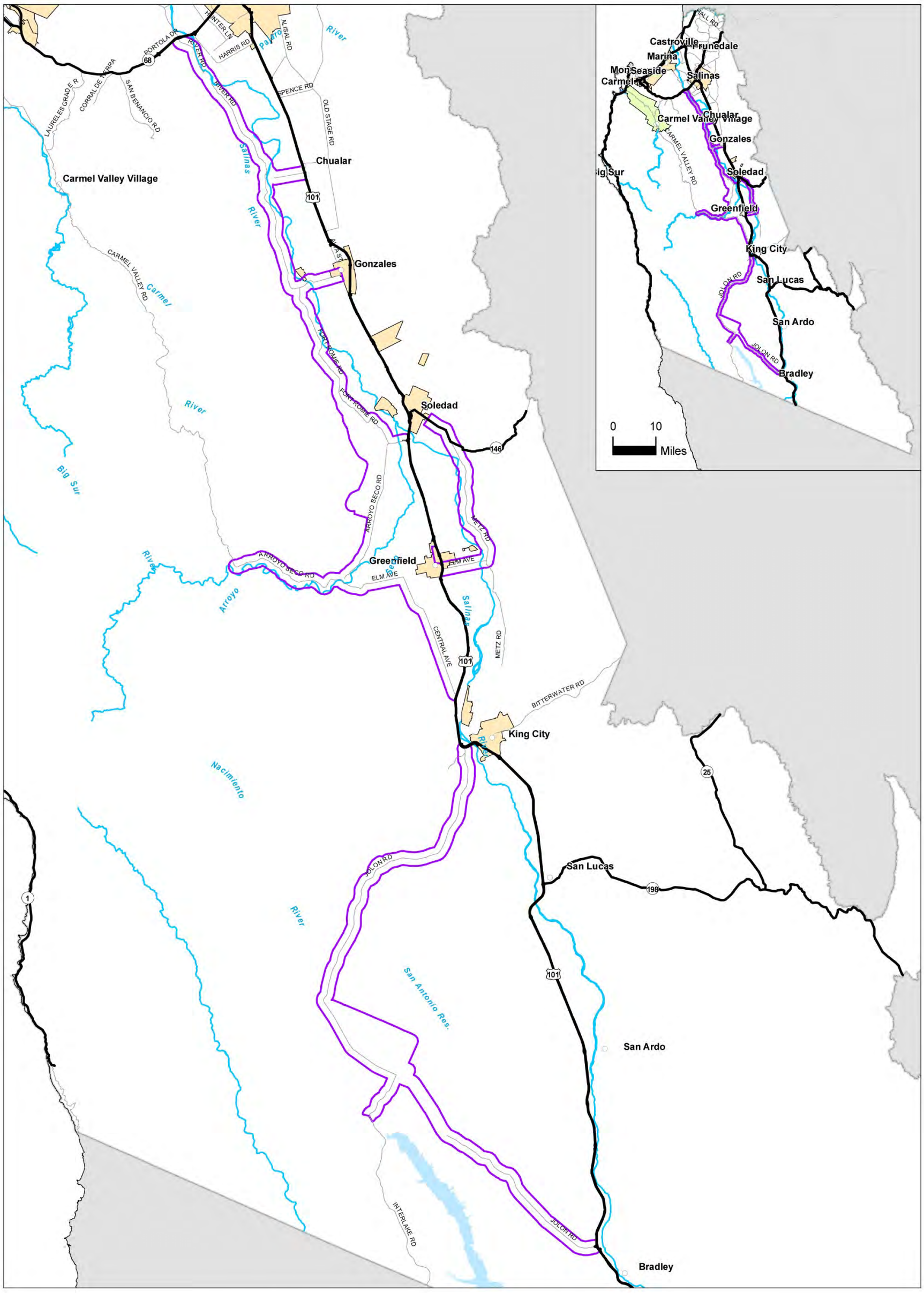
Exhibit 4.6-10
Buildout Cumulative Plus Project Roadway Level of Service



Agriculture and Wine Corridor Area

Sources:
California Spatial Information Library.
Kimley-Horn and Associates

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Exhibit 4.6-11
Agriculture and Wine Corridor Area