3.12 Traffic and Transportation

3.12.1 Introduction

This section describes the regulatory setting, environmental setting, and potential impacts of the Proposed Project related to traffic and transportation.

3.12.2 Regulatory Setting

Various levels of government or regulatory authority are responsible for some or all aspects of the planning, implementation, operations, and maintenance of transportation facilities and services in the Project Area. Several state, regional, and local agencies have jurisdiction over transportation planning in Santa Clara County.

Federal Plans, Policies, Regulations, and Laws

Federal Highways Administration

Federal statutes specify the procedures the U.S. Department of Transportation (DOT) must follow in setting policy regarding the placement of utility facilities within the rights-of-way of highways that receive federal assistance. These include expressways, most state highways, and certain local roads. The Federal Highway Administration (FHWA) regulations require each state to develop its own policy regarding the accommodation of utility facilities within the rights-of-way of such highways. Once FHWA has approved a state's policy, the state can approve any proposed utility installation without referral to FHWA, unless it does not conform to the policy.

Federal law does not directly control how states accommodate utilities within highway rights-of-way. However, in determining where a right-of-way on a federally aided highway should be used for accommodating a utility facility, the U.S. Secretary of Transportation must: (1) ascertain the effect accommodation of utilities will have on highway and traffic safety, because no such use may be authorized or permitted that would adversely affect safety; (2) evaluate the direct and indirect environmental and economic effects of any loss of productive agricultural land or any impairment of its productivity that would result from disapproving accommodation of the utility facility; and (3) consider the environmental and economic effects together with any interference with or impairment of the use of the highway that would result from accommodation of the utility facility (23 U.S. Code [USC] Section 109[1]). In addition, 23 USC Section 116 requires state highway agencies to ensure proper maintenance of highway facilities, which implies adequate control over non-highway facilities such as utility facilities. Furthermore, 23 USC Section 123 specifies when federal funds can be used to pay for the costs of relocating utility facilities in connection with highway construction projects.

The Hazardous Materials Act

The Hazardous Materials Act of 1974, directed by DOT, governs the transportation of hazardous materials. The main objective of this policy is to improve regulations and enforcement efforts that deal with the transportation of hazardous materials in commerce.

Title 49, Code of Federal Regulations

Title 49, Code of Federal Regulations (CFR), Sections 171-173 and 177 include general information, regulations, and definitions pertaining to the transportation of hazardous materials, the types of materials defined as hazardous, shipping requirements, marking of transportation vehicles, training requirements, and carriage by public highway. Title 49, CFR Sections 350-399 and Appendices A-G address safety issues for transport of goods, materials, and substances over public highways.

State Plans, Policies, Regulations, and Laws

California Department of Transportation

Caltrans has jurisdiction over state facilities including freeways and state highways. Caltrans also has jurisdiction over on- and off-ramp intersections at the interchanges between Caltrans facilities and local roadways. Improvements to freeways and state highways must meet Caltrans standards. Caltrans recommends a target level of service (LOS) at the threshold between LOS C and LOS D for their facilities. If the location under existing conditions operates worse than the appropriate target LOS, then the existing LOS should be maintained. LOS of intersections or roadway segments are not evaluated for this analysis.

Any encroachment within the right-of-way of a state highway or route is subject to Caltrans regulations, including issuance of an encroachment permit and the provisions of temporary traffic control systems. An encroachment, as defined in Section 660 of the Streets and Highways Coded, can be any tower, pole, pole line, pipe, pipe line, fence, billboard, stand, or building, or any structure or object of any kind or character that is within the right-of-way but not a part of the Caltrans facility. Authority for Caltrans to control encroachment within the state highway is contained in the Streets and Highways Code, starting with Section 660. Encroachment permits are intended to safeguard the affected jurisdictions' properties, either by providing preventive measures to be implemented during project construction or providing corrective measures if damage occurs. Traffic control systems can include traffic control warning signs, lights, and/or safety devices to ensure the safety of the traveling public.

See Section 3.1, *Aesthetics*, for further discussion of the Caltrans State Scenic Highway System.

California Vehicle Code

The California Vehicle Code (CVC) Section 353 defines hazardous materials. CVC Sections 31303-31309 include regulations for the transportation of hazardous materials, routes used, and any applicable restrictions. CVC Section 34500 et seq. regulates the safe operation of vehicles and includes those that are used for the transportation of hazardous materials. CVC Sections 2500-2505 authorize the issuances of licenses by the Commissioner of California Highway Patrol for the transportation of hazardous materials, including explosives. CVC Division 15, Size, Weight, and Load, Chapter 5, Article 6 contains transported load regulations. Approvals from Caltrans are required for transportation of oversized or excessive loads over state highways, including limitations based on axles and wheel base lengths. (Also see discussion Section 3.6, *Hazards and Hazardous Materials*.

California Streets and Highway Code

California Streets and Highway Code, Sections 117 and 660-672 and CVC 35780 et seq. require permits for the transportation of oversized loads on county roads.

Regional and Local Plans, Policies, Regulations, and Ordinances

Metropolitan Transportation Commission/Transportation 2035

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county Bay Area. The current regional transportation plan, known as Transportation 2035, was adopted by MTC on April 22, 2009. Transportation 2035 specifies a detailed set of investments and strategies throughout the region from 2009 through 2035 to maintain, manage, and improve the surface transportation system.

Santa Clara Valley Transportation Authority/Congestion Management Program

The Santa Clara Valley Transportation Authority (VTA) serves three roles in the county: primary transit operator, Congestion Management Agency, and regional transportation planning agency. In its role as transit operator, the VTA is responsible for the development, operation, and maintenance of the bus and light rail system within the county. The VTA operates over 70 bus lines, three light rail lines (in addition to shuttle and paratransit service), and provides transit service to major regional destinations and transfer centers in adjoining counties.

VTA oversees the Congestion Management Program (CMP). State legislation requires that all urbanized counties in California prepare a CMP to obtain each county's share of gas tax revenues. The CMP legislation requires that each CMP contain five mandatory elements: 1) a system definition and traffic LOS standard element; 2) a transit service and standards element; 3) a trip reduction and transportation demand management element; 4) a land use impact analysis program element; and 5) a capital improvement element. The county's program includes the five mandated elements and three additional elements: a countywide transportation model and data base element; a bi-annual monitoring and conformance element; and a deficiency plan element. Preparation of a deficiency plan is required by cities

for CMP facilities that operate at unacceptable levels based on the CMP's standard. The purpose of a deficiency plan is to improve system-wide traffic flow and air quality. According to the VTA's Requirements for Deficiency Plans (1992), plans "allow local jurisdictions to adopt innovative and comprehensive transportation strategies for improving system-wide [operations] rather than adhering to strict traffic level of service standard that may contradict other community goals."

VTA requires that proposed development project impacts on the CMP system be addressed. The CMP system in San Jose includes the freeway and expressway systems, and a number of major regional roadways. For the purpose of this study, LOS on individual roadway segments is not evaluated. Instead, because this study is a program-level evaluation of proposed maintenance activities, vehicle miles traveled are estimated to evaluate the level of maintenance activity.

Santa Clara County Roads and Airports Department

Streets in unincorporated areas as well as all of the county expressways are managed under the auspices of the County Roads and Airports Department. Several larger, developed unincorporated areas exist near some of the work areas, including those in the Burbank area (east of the I-280/I-880-SR 17 interchange) and in the Cambrian area (between Jackson Drive and Leigh Avenue south of Camden Avenue). The County also is responsible for maintaining and operations of all of expressways and streets on its property.

Local Regulations/City Policies

Local municipalities in the county (Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale) all have plans, policies, codes, ordinances, and/or guidelines (referred to hereafter as city policies) that regulate transportation activities within their jurisdictions. These city policies generally require LOS to remain at or above LOS C, D, or E, depending on the jurisdiction and the intersection (high volume versus low volume). Truck access is generally limited to truck routes that are defined by each jurisdiction. If a location is not along a truck route, municipalities encourage (for example) "trucks making local deliveries [to] proceed by the shortest route to the nearest truck route for travel." (City of Los Altos 2002) Stated another way, municipalities encourage trucks to stay "off local streets except for deliveries." (City of Santa Clara 2002) Local municipalities also have jurisdiction over all city/town streets and city-/town-operated traffic signals.

3.12.3 Environmental Setting

This section discusses the physical transportation system that provides access to SCVWD facilities.

Roadway Network

The county's transportation network is comprised of freeways, expressways, arterial roadways, collector roadways, and local streets. Freeways are designed for low accessibility (limited connections to other facilities provided by grade-separate interchanges) and high mobility (throughput of traffic movement). Conversely, local streets are designed for high

accessibility (access to adjacent properties) and low mobility. Other roadways fall in between these two roadway types. The county's main vehicular roadway types are described next.

Freeways

U.S. 101 is a north-south freeway in the county. The freeway includes four mixed-flow lanes per direction, including high occupancy vehicles (HOV) lanes during peak periods. HOV lanes, also known as diamond or carpool lanes, restrict use to vehicles with two or more persons (carpools, vanpools, and buses) or motorcycles during the peak morning (5:00 a.m. to 9:00 a.m.) and evening (3:00 p.m. to 7:00 p.m.) commute periods. Northbound U.S. 101 is generally the peak morning commute direction, and southbound U.S. 101 is the peak evening commute direction. U.S. 101 extends through the county, from south of Gilroy to north of Palo Alto via downtown San Jose and Mountain View.

I-280 is a north-south freeway extending from the U.S. 101 interchange in San Jose north to San Francisco. East of the U.S. 101 interchange, I-280 is designated as I-680. The freeway includes four to five mixed-flow lanes per direction, including HOV lanes north of the I-280/I-880/SR 17 interchange. The peak commute directions on I-280 are northbound in the morning and southbound in the evening. I-280 extends through the county, between approximately Alpine Road in Palo Alto and U.S. 101 in San Jose via Cupertino.

I-680 is a north-south freeway extending from the I-280/I-680/U.S. 101 interchange in San Jose north to Solano County. Within the county, the freeway includes four mixed-flow lanes per direction. Peak commute directions on I-680 are southbound in the morning and northbound in the evening. From the north, I-680 enters the county at the northern Milpitas city limit.

I-880 is a north-south freeway extending from San Jose at the I-280/I-880/SR 17 interchange to Oakland. This facility includes three to four mixed-flow lanes per direction. Northbound I-880 is the peak commute direction in the morning, and southbound I-880 is the peak commute direction in the evening. I-880 enters the county from the north at the northern Milpitas city limit.

SR 17 is a north-south freeway extending from San Jose at the I-280/I-880/SR 17 interchange to Santa Cruz. The facility includes two to three mixed-flow lanes per direction. Northbound is the peak direction in the morning, and southbound is the peak direction in the evening. SR 17 exits the county at Skyline Boulevard in the Santa Cruz Mountains south of Los Gatos.

SR 85 is a north-south freeway extending through the county from the SR 85/U.S. 101 interchange in Mountain View to the SR 85/U.S. 101 interchange in south San Jose via Los Gatos and Saratoga. This facility includes three to four mixed-flow lanes per direction, including HOV lanes during peak periods. Northbound SR 85 is the commute direction in the morning, and southbound SR 85 is the commute direction in the evening. The freeway is located entirely within the county.

SR 87 is a north-south freeway extending from the SR 85/SR 87 interchange in south San Jose to the U.S. 101/SR 87 interchange north of downtown San Jose. This facility includes three mixed-flow lanes per direction, including HOV lanes during peak periods. Northbound SR 87 is the commute direction in the morning, and southbound SR 87 is the commute direction in the evening. SR 87 is located entirely within San Jose.

SR 237 is an east-west freeway extending between Mountain View and Milpitas. This freeway includes three mixed-flow lanes per direction, including HOV lanes during peak periods. Traffic is evenly split between the eastbound and westbound commute directions during both the morning and evening commute times. The freeway is located entirely within the county.

Conventional State Highways

This type of roadway facility is operated and maintained by Caltrans. SR 9 (Saratoga-Los Gatos Road/Big Basin Way/Congress Springs Road), SR 82 (Monterey Road/The Alameda/ El Camino Real), SR 130 (Alum Rock Avenue/Mt. Hamilton Road), SR 152 (Pacheco Pass Road/1st Street/Leavesley Road/Hecker Pass Highway), SR 25 (Hollister Road), and SR 237 (Calaveras Boulevard) east of I-880 are the designated state highways in the county. In general, state highways have a primary function of traffic movement. However, some locations have a reduced emphasis on vehicle mobility, such as The Alameda, because its characteristics include numerous access points and fronting uses for the neighborhood business district.

Expressways

Expressways are facilities designed primarily for traffic movement, and they provide limited access to abutting properties. These facilities generally include median areas dividing traffic directions, some intersecting streets allowing only right-turn access, some grade-separated interchanges, and some signalized intersections allowing full access. Expressways are maintained and operated by the County Roads and Airports Department. The Department controls access to and operation of traffic signals on each of these facilities. The expressways located in the county include: Almaden Expressway, Capitol Expressway, Central Expressway, Foothill Expressway, Lawrence Expressway, Montague Expressway, Oregon Expressway, San Tomas Expressway, and Southwest Expressway.

Arterial Roadways

Arterial roadways are facilities that accommodate major movements of traffic not served by freeways, expressways, or state highways. They are designed mainly for the movement of through traffic and the provision of access to abutting properties is a secondary function. Although abutting properties have access to the facilities, parking and loading may be restricted or prohibited to improve the capacity for moving traffic. The number of lanes on this type of facility depends on its function, its location, and the volume of traffic it is expected to handle; however, arterials generally are planned to have four or more travel lanes. Selected arterial roadways in the county include, but are not limited to: Blossom Hill Road, De Anza Boulevard, Mathilda Avenue, Middlefield Road, San Antonio Road, Santa Teresa Boulevard, and Stevens Creek Boulevard.

Collector Roadways

Collector roadways are facilities that serve internal traffic movements within a specific area or neighborhood and provide connections to the arterial street system. Collectors typically do not serve through trips but provide access to abutting properties and connections to local streets. Traffic control devices may be installed to protect or facilitate traffic on a collector street. Some examples of collectors in the county include: Foxworthy Avenue, Llagas Road, Miramonte Avenue, Monroe Street, Pierce Road, Ruby Avenue, and Stelling Road.

Local Streets

Local streets are facilities having the primary function of providing access to immediately adjacent properties. The majority of streets in the county are local streets that provide access to residential and commercial properties.

Public Transit

Existing public transit service within the county is provided by VTA and consists of bus, light rail transit, and paratransit service. Commuter rail service is provided by Caltrain, the Altamont Commuter Express, and the Capitol Corridor. These services are described in Table 3.12-1.

Table 3.12-1. Transit Service within Santa Clara County

Provider (Operator)	Service	Rail Stop Examples	Extent of Service	Frequency
Santa Clara Valley Transportation Authority (VTA)	Local, limited-stop, express, and rapid bus; Light rail transit	Santa Teresa, Alum Rock, Winchester, Convention Center, Mountain View	Santa Clara County	Varies for bus service; Light rail headways range from 15 to 45 minutes
OUTREACH	Paratransit	Not available	Not available	Not available
Caltrain (Peninsula Joint Powers Board)	Commuter Rail	Sunnyvale, San Jose Diridon, Tamien, Gilroy	San Francisco to San Jose, select trains to Gilroy	Weekday headways 30 to 60 minutes; Weekend headways 60 minutes
Altamont Commuter Express (San Joaquin Regional Rail Commission)	Commuter Rail	Great America, San Jose Diridon	Stockton to San Jose	Four eastbound and four westbound trains, 60 minute headways, commute periods only
Capitol Corridor (Capitol Corridor Joint Powers Authority)	Commuter Rail	Great America, San Jose Diridon	Auburn to San Jose	Seven southbound and seven northbound trains

Sources: VTA 2010, Outreach 2010, Caltrain 2010, ACE 2010, Capitol Corridor 2010

Pedestrian Circulation

Pedestrian facilities improve safety for pedestrians and also can encourage the use of alternative modes of transportation. These facilities include sidewalks, paths, pedestrian bridges, crosswalks, and pedestrian signals with crosswalks at signalized intersections to accommodate pedestrian circulation. In California, it is legal for pedestrians to cross any street, except at unmarked locations between immediately adjacent signalized crossings or where crossing is expressly prohibited. Marked crossings reinforce the location and legitimacy of a crossing. The county's pedestrian network consists of sidewalks, multi-use paths/trails, and both grade-separated and at-grade crossings. The county has many areas that are especially conducive to walking for recreation and transportation, particularly in downtown areas and along off-street paths.

Bicycle Circulation

The typical California standards for bikeways, described in Chapter 1000, "Bikeway Planning and Design" in the Caltrans *Highway Design Manual* (2006), include three distinct types of bikeway facilities:

Bike paths (Class I) are paved pathways separated from roadways that are designated for the exclusive use of bicycles, pedestrians, and other non-motorized means of transport. In general, bike paths serve corridors that are not served by streets and highways or where sufficient right-of-way exists to allow such facilities to be constructed away from the influence of parallel streets and numerous vehicle conflicts. Examples include the Coyote Creek Trail, Los Gatos Creek Trail, San Tomas Aquino Creek Trail, and the Stevens Creek Trail, all of which have asphalt or concrete surfaces.

Bike lanes (Class II) are lanes for bicyclists adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bike lanes are usually constructed to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets. Example bike lanes include those on Campbell Avenue, Curtner Avenue, De Anza Boulevard, Dunne Avenue, Fremont Avenue, Los Gatos Boulevard, Milpitas Boulevard, Reed Avenue, Saratoga Avenue, Page Mill Road, and Santa Teresa Boulevard.

Bike routes (Class III) in general are located on low traffic volume streets that provide alternate routes for recreational users, and in some cases, for commuter and school-age cyclists. These facilities are signed for bike use but have no separated bike right-of-way or lane striping. Bike routes serve either to provide continuity to other bicycle facilities or designate preferred routes through high-demand corridors. Examples include bike routes on Benton Street, Covington Road, Mary Avenue, and Meridian Avenue. Some routes, such as San Fernando Street between SR 87 and San Jose Diridon Station (where additional width for bike lanes was not available), feature "sharrow" symbols, installed on the pavement to designate the appropriate travel path for cyclists and increase driver awareness of bicycles. Other routes, such as Bryant Street in Palo Alto, are designated as "Bicycle Boulevards" that employ traffic calming measures to encourage bicycle use of the street but discourage automobile through trips.

Existing Daily Vehicle Trips Generated and Miles Traveled

The following discussion presents estimates regarding the existing SMP. The amount of vehicle trips generated and vehicle miles traveled (VMT) can be obtained through historical maintenance activity records and estimates of average trip lengths, or through the use of a validated travel demand model that estimates vehicle demand. The former was used for this analysis.

Traffic Estimates

The estimate for maintenance vehicle trips that would be generated by the existing SMP activities were developed using SCVWD data, including estimated annual gross sediment removal totals, defined dry season maintenance window, typical off-haul truck capacity, and typical loading rates and procedures.

The multi-step process for estimating the Proposed Project maintenance trips is described below and included the following steps:

- Processed historical data
- Made assumptions to supplement historical data
- Estimated average daily trips generated
- Estimated annual trips generated

Trips would be made by four types of vehicles: light duty vehicles, medium duty vehicles, heavy duty vehicles, and other large trucks. For the purposes of this analysis, light duty vehicles include vehicle types such as minivans and sedans. Medium duty vehicles include vehicles such as Ford F-150s and Rangers. Heavy duty vehicles include vehicles such as Ford F-350s, F-450s, crane trucks, water trucks, cargo vans, and Bobtail dump trucks. Other large trucks include vehicle types such as large 10-cy sediment removal dump trucks, 20-cy vegetation removal compactors, and other large semi-trucks that are used to haul equipment or similar amounts of materials. A full list of vehicles included in each vehicle type is provided in Table K8 of Appendix K in this document.

1) Process Historical Data

The SCVWD's historical data included the number and hours that light, medium, and heavy duty vehicles have been used for each stream maintenance activity (e.g., sediment removal, vegetation removal, animal conflicts management, minor maintenance, and bank stabilization) (Williams and Smith, pers. comm., 2010). Historical data for contract vehicles was not available because such vehicles are not owned by SCVWD (Williams and Smith, pers. comm., 2010). The historical data is shown in Tables K11 through K15 of Appendix K in this document. The historical number and hours that SCVWD vehicles used for each stream maintenance activity was processed, and the average number of trips per day was determined, based on this data.

2) Assumptions to Supplement Historical Data

Assumptions were made to estimate the remaining vehicle trips because not all vehicle types were included in the historical data provided by SCVWD. This analysis includes the following assumptions to estimate existing SMP vehicle trip generation:

- Sediment removal dump trucks have an 8-cy capacity.
- The dry season work period is 85 work days, although some activities such as minor maintenance and vegetation removal occur year-round (see Chapter 2, *Project Description*, pages 2-35 through 2-40). (The calculation for dry season work days is shown in Table K18 of Appendix K in this document.)
- Seasonal trips are calculated by multiplying the average daily trips by the number of work days in the season.
- A daily work period is 8 work hours.
- Two trucks are used to deliver materials or equipment to each job site.
- Eight deliveries of materials are made from quarries to SCVWD headquarters per year.
- One delivery of materials is made from SCVWD headquarters to each work site.
- Each light, medium, and heavy duty vehicle makes more than two trips per day. Some trips may be from one work site to another and other trips may be made to pick up supplies from either the corporate yard or from a local hardware store. Therefore, these vehicles do not necessarily make one trip to the work site and one return trip.
- Activities are performed at 8–28 work sites per day.
- The number of bank stabilization work sites, sediment removal volumes, deliveries per basin or subbasin, and some light duty vehicle usage are based on percentages of waterbody miles in each basin or subbasin.
- The number of trips generated by other large trucks for sediment removal activities was calculated by dividing the average historic sediment removal amounts (see Chapter 2, *Project Description*, page 2-5) by the truck hauling capacity of 8-cy.
- Two truck trips are generated for each bank stabilization work site and the number of work sites was provided by SCVWD.

3) Estimated Average Daily Trips Generated

The average daily vehicle trips of light, medium, and heavy duty vehicles were added to average daily other large truck trips to calculate the average number of trips per day that is estimated to occur under the SMP.

4) Estimated Average Annual Trips Generated

Seasonal trips during the dry season were calculated by multiplying the average daily dry season trips by the number of work days in the dry season. Similarly, the trips during the remainder of the year were calculated by multiplying the average daily remainder of the year trips by the number of work days in the remainder of the year. The annual trips generated were calculated by adding the dry season trips to the trips generated during the remainder of the year.

The existing SMP generates 1,114 daily one-way maintenance trips during the dry season and 544 one-way daily maintenance trips during the remainder of the year (all references to trips in the remainder of this section refer to one-way trips). This is equivalent to 94,690 dry season maintenance trips and 92,480 maintenance trips during the remainder of the year, resulting in 187,170 annual maintenance trips. Table 3.12-2 shows the trip generation estimates for each SCVWD basin per day; Table 3.12-3 shows the trip generation estimates per year.

Table 3.12-2. Existing SMP Trip Generation Estimates per day

Basin	Sub-Basin	Average Vehicle Trips per Day	
		Dry Season[1]	Remainder of Year
Santa Clara Valley	Lower Peninsula	188	122
	West Valley	254	160
	Guadalupe	202	70
	Coyote	327	142
	Subtotal (A)	***971***	***494***
Pajaro River (B)	-	143	50
Total (A+B)		**1,114**	**544**

Notes:
[1] The dry season generally is from June 15 through October 15.
Source: Fehr & Peers 2011

Table 3.12-3. Existing SMP Trip Generation Estimates per year

Basin	Sub-Basin	Average Vehicle Trips per Year		
		Dry Season[1]	Remainder of Year	Total
Santa Clara Valley	Lower Peninsula	18,577	18,143	**36,720**
	West Valley	24,683	24,107	**48,790**
	Guadalupe	14,707	14,363	**29,070**
	Coyote	26,274	25,661	**51,935**
	Subtotal (A)	***84,241***	***82,274***	***166,515***
Pajaro River (B)	-	10,449	10,206	20,655
Total (A+B)		**94,690**	**92,480**	**187,170**

Notes:
[1] The dry season generally is from June 15 through October 15.
Source: Fehr & Peers 2011

Vehicle Miles Traveled Estimates

Transportation is a major contributor to greenhouse gas emissions. According to the U.S. Environmental Protection Agency, the transportation sector was responsible for nearly 28 percent of all greenhouse gas (GHG) emissions in the United States in 2006 (USEPA 2008), and transportation in California was responsible for about 38 percent of GHG emissions in 2004 (CARB 2008). Transportation is the direct result of population and employment growth, which generates vehicle trips to move goods, provide public services, and connect people with work, school, shopping, and other activities such as construction (see Section 3.5, Global Climate change).

A performance measure used to quantify the amount of travel is VMT. VMT is a useful performance measure because the amount of travel and conditions under which the travel occurs directly relate to how much fuel vehicles burn. As a result, increases in VMT directly cause increases in greenhouse gas emissions and air pollution (see also Section 3.5, *Global Climate Change*).

The multi-step process for estimating the SMP VMT is described below and included the following steps.

- Processed historical VMT data
- Estimated average trip length
- Estimated trip distribution
- Estimated average daily VMT
- Estimated annual VMT

1) Historical VMT Data Review

As mentioned previously, the historical number of miles for some district vehicles was provided by SCVWD (Williams and Smith, pers. comm., 2010), and this data was used to determine average miles traveled per year. The historical data provided by SCVWD is included in Table K9 of Appendix K in this document.

2) Estimate Average Trip Length

Average trip lengths were determined by calculating the length between each basin/subbasin and disposal locations, SCVWD headquarters, and the animal control offices, and the length between SCVWD headquarters and the quarries. Because basins/subbasins do not have an address per se but cover a wide area of land, for the purposes of this VMT analysis, the following assumptions were made:

- Each basin/subbasin was generalized to a point location near the center of the basin/subbasin to more easily calculate trip length distances (Williams and Smith, pers. comm., 2010). (The list of point locations are shown in Table K14 of Appendix K and the trip distances are shown in Table K19 of Appendix K in this document.)

- Only the areas below 1,000 feet in elevation were used to determine the centers of each basin/subbasin (see Chapter 2, *Project Description*, page 2-6).

3) Estimate Trip Distribution

Trips are made to and from multiple sites: multiple project sites in each basin/subbasin, disposal locations, SCVWD headquarters, quarries, and the animal control offices. Therefore, the following assumptions were made to determine what percentage of traffic went to and from each site:

- The directions of approach and departure for work activity-related traffic were estimated based on historical data of work sites provided by SCVWD (Williams and Smith, pers. comm., 2010), possible work site locations, the sediment disposal/reuse locations, SCVWD headquarters, and other locations including, but not limited to, rock quarries and the animal control offices.

- The distribution of trips from each basin/subbasin to each disposal/reuse site was based on the percentage of the basin/subbasin nearest to each disposal/reuse site (Williams and Smith, pers. comm., 2010).

These assumptions also are included in Tables K16 and K17 of Appendix K in this document.

4) Estimate Average Daily VMT

The VMT for the SMP was estimated as the trips generated resulting from the SMP (presented in Tables 3.12-4 and 3.12-5) multiplied by the estimated distance those trips would travel. Also, the VMT estimated in this step was compared to the historical VMT, calculated in the first step.

5) Estimate Annual VMT

Seasonal VMT during the dry season was calculated by multiplying the average daily dry season VMT by the number of work days in the dry season. Similarly, the VMT during the remainder of the year was calculated by multiplying the average daily remainder of the year VMT by the number of work days in the remainder of the year. The annual VMT was calculated by adding the dry season VMT to the VMT generated during the remainder of the year.

The SMP generates 13,273 daily VMT during the dry season and 7,192 daily VMT during the remainder of the year. This is equivalent to 1,128,205 dry season VMT and 1,222,641 VMT during the remainder of the year, resulting in 2,350,846 annual VMT.

Table 3.12-4. Existing SMP Vehicle Miles Traveled Estimates per day

Basin	Sub-Basin	Average Vehicle Miles Traveled per Day	
		Dry Season[1]	Remainder of Year
Santa Clara Valley	Lower Peninsula	2,643	2,023
	West Valley	2,880	2,029
	Guadalupe	1,894	635
	Coyote	3,965	1,686
	Subtotal (A)	***11,382***	***6,373***
Pajaro River (B)	-	1,892	819
Total (A+B)		**13,273**	**7,192**

Notes:
[1] The dry season generally is from June 15 through October 15.
Source: Fehr & Peers 2011

Table 3.12-5. Existing SMP Vehicle Miles Traveled Estimates per year

Basin	Sub-Basin	Average Vehicle Miles Traveled per Year		
		Dry Season[1]	Remainder of Year	Total
Santa Clara Valley	Lower Peninsula	272,846	295,684	568,530
	West Valley	282,988	306,676	589,664
	Guadalupe	129,067	139,871	268,938
	Coyote	299,277	324,327	623,604
	Subtotal (A)	***984,178***	***1,066,558***	***2,050,736***
Pajaro River (B)	-	144,027	156,083	300,110
Total (A+B)		**1,128,205**	**1,222,641**	**2,350,846**

Notes:
[1] The dry season generally is from June 15 through October 15.
Source: Fehr & Peers 2011

3.12.4 Impact Analysis

Methodology

Proposed Daily Vehicle Trips Generated and Miles Traveled

The methods and process used to estimate existing SMP maintenance vehicle trips generated and VMT also were used to estimate the trips and VMT that would be generated by the Proposed Project.

The Proposed Project generally would extend the dry season work period from October 15 to the first rainfall or December 31, whichever was earlier. Adjusting for rain variation and work activity needs, it is estimated that approximately 25 percent more dry season maintenance activities could be completed in this time period (Williams and Smith, pers. comm., 2010). Therefore, the current work window of 85 days would be extended so that the proposed dry season work window would be 106 days (85 days times 1.25). Some current maintenance activities that occur outside of the typical dry season would shift into the dry season work window. Therefore, some of the trips and VMT generated in the dry season of the Proposed Project would be trips and VMT formerly generated outside of the typical dry season, under the existing SMP.

Traffic Estimates

As mentioned previously, the process used to estimate the maintenance vehicle trips that are generated by the existing SMP activities also was used to estimate trips to be generated by the Proposed Project. The results of these trip estimates are described next.

The Proposed Project is estimated to generate 1,114 daily maintenance trips during the dry season and 544 daily maintenance trips during the remainder of the year, which are the same as under the existing SMP. Unlike the existing SMP and because the dry season work window would be extended under the Proposed Project, this would be equivalent to 118,084 dry season maintenance trips and 81,056 maintenance trips during the remainder of the year, resulting in 199,140 annual maintenance trips, an increase of 11,960 annual trips (which would be the same as an increase of approximately 70 trips per hour or between two and ten trips per hour per work site). Table 3.12-6 shows the annual Proposed Project trip generation estimates for each SCVWD basin. Proposed Project maintenance activity would occur year-round, truck traffic would be spread out over the day, the individual activities would be temporary in nature, the individual activities would vary in location, and the amount of peak-hour trips generated by the Proposed Project would be an average of approximately 140 hourly trips. Furthermore, at each work site, the level of peak-hour trips generated by the Proposed Project generally would be low (e.g., an average of approximately 20 hourly trips). Therefore, an intersection and roadway LOS analysis was not conducted.

Table 3.12-6. Proposed Project Trip Generation Estimates per year

Basin	Sub-Basin	Average Vehicle Trips Per Year		
		Dry Season[1]	Remainder of Year	Total
Santa Clara Valley	Lower Peninsula	19,928	18,178	38,106
	West Valley	26,924	23,840	50,764
	Guadalupe	21,412	10,430	31,842
	Coyote	34,662	21,158	55,820
	Subtotal (A)	***102,926***	***73,606***	***176,532***
Pajaro River (B)	-	15,158	7,450	22,608
Total (A+B)		**118,084**	**81,056**	**199,140**

Notes:

[1] The dry season generally would be from June 15 through the first significant rainfall after October 15 or December 31, whichever was earlier. The dry season would be extended by 21 days to 106 days under the Proposed Project.

Source: Fehr & Peers 2011

Vehicle Miles Traveled Estimates

As mentioned previously, the method used to estimate the VMT that would be generated by the existing SMP activities also was used to estimate the VMT that would be generated by the Proposed Project. The results of the VMT estimates are described next.

The Proposed Project would generate 13,273 daily VMT during the dry season and 7,192 daily VMT during the remainder of the year, which would be the same as the existing SMP. Unlike the existing SMP and because the dry season work window would be extended under the Proposed Project, this would be equivalent to 1,406,938 dry season VMT and 1,071,609 VMT during the remainder of the year, resulting in 2,478,547, an increase of 127,701 annual VMT. Table 3.12-7 shows the annual VMT estimates for each SCVWD basin under the Proposed Project.

Table 3.12-7. Proposed Project Vehicle Miles Traveled Estimates per year

Basin	Sub-Basin	Average Vehicle Miles Traveled Per Year		
		Dry Season[1]	Remainder of Year	Total
Santa Clara Valley	Lower Peninsula	329,806	251,200	581,006
	West Valley	345,208	262,931	608,139
	Guadalupe	167,660	127,700	295,360
	Coyote	381,132	290,293	671,425
	Subtotal (A)	***1,223,806***	***932,124***	***2,155,930***
Pajaro River (B)	-	183,132	139,485	322,617
Total (A+B)		**1,406,938**	**1,071,609**	**2,478,547**

Notes:

[1] The dry season generally would be from June 15 through the first significant rainfall after October 15 or December 31, whichever was earlier. The dry season would be extended by 21 days to 106 days under the Proposed Project.

Source: Fehr & Peers 2011

Criteria for Determining Significance

For the purposes of this analysis, the Proposed Project would result in a significant impact on traffic and transportation if it would:

A. exceed, either individually or cumulatively, level of service standards established by local or regional agencies for designated roads or highways, or otherwise cause a substantial increase in traffic in relation to the planned or designated traffic load and capacity of the circulation system;

B. substantially increase hazards or result in substantial safety risks due to a design feature (e.g., sharp curves, inadequate emergency service access, or dangerous intersections) or incompatible uses (e.g., haul routes through residential neighborhoods or by schools);

C. result in inadequate emergency access or interfere with adopted emergency evacuation plan;

D. result in incompatible land uses through inadequate parking capacity or parking/staging activities on residential streets; or

E. conflict with adopted policies, plans or programs supporting alternative transportation (e.g. bus turnouts, bicycle lanes, bicycle racks).

To evaluate the Proposed Project, these guidelines are interpreted as follows in the sections below.

Design Review Considerations Criteria

A design impact from a transportation improvement would be considered significant if the Proposed Project would introduce a design feature from a transportation improvement or incompatible use that substantially increased safety hazards.

Emergency Response Time Impact Criteria

An emergency response time impact would be considered significant if implementation of the Proposed Project would provide inadequate access to accommodate emergency vehicles.

Alternative Transportation Impact Criteria

An alternative transportation impact would be considered significant if implementation of the Proposed Project would:

- Disrupt ongoing, or interfere with planned transit services or facilities;
- Disrupt existing bicycle facilities; interfere with planned bicycle facilities; conflict or create inconsistencies with adopted bicycle system plans, guidelines, policies or standards; or not provide secure and safe bicycle parking in adequate proportion to anticipated demand; or

- Disrupt existing pedestrian facilities; interfere with planned pedestrian facilities; not provide accessible pedestrian facilities that meet current Americans with Disabilities Act (ADA) best practices; or would create inconsistencies with adopted pedestrian system plans, guidelines, policies or standards.

Structure of Impact Discussion

Because traffic and transportation impacts would be the result of maintenance activities as a whole, specific discussions by work activity are not included in the impact analysis below.

Environmental Impacts

Impact TR-1: Increase in Vehicle Miles Traveled (Significance Criterion A; Less than Significant)

The current SMP results in 13,273 daily maintenance VMT during the dry season and 2,350,846 annual VMT. Due to the extension in the number of days of operation, the Proposed Project would continue to produce 13,273 daily maintenance VMT during the dry season, but would result in 2,478,547 annual VMT, an increase of 127,701 annual VMT. This could result in a substantial increase in traffic in relation to the planned or designated traffic load and capacity of the circulation system.

Applicable Best Management Practices

The following BMPs would be implemented as part of the SMP Update to reduce impacts on emergency access. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

BMP GEN-36: Public Outreach
BMP GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures

Conclusion

Because of the temporary nature of proposed maintenance activities at any given location, the fact that Proposed Project-generated traffic would be distributed across the county, and with implementation of these BMPs, the increases in traffic are not anticipated to be substantial. For these reasons, impacts would be less than significant and no mitigation would be required.

Mitigation Measures: No mitigation is required.

Impact TR-2: Substantial Increase in Safety Hazards (Significance Criteria B, C; Less than Significant)

The Proposed Project's maintenance activities may require temporary lane closures, and these closures may increase safety risks by forcing lane changes that would not be made otherwise.

Applicable Best Management Practices

The following BMPs would be implemented as part of the SMP Update to reduce impacts on emergency access. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

BMP GEN-36: Public Outreach
BMP GEN-37: Implement Public Safety Measures
BMP GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures

Conclusion

Because of the temporary nature of proposed maintenance activities, and with implementation of these BMPs, impacts would be less than significant and no mitigation would be required.

Mitigation Measures: No mitigation is required.

Impact TR-3: Inadequate Emergency Access (Significance Criteria A, B, C; Less than Significant)

The Proposed Project may require temporary lane closures which could hinder emergency response times.

Applicable Best Management Practices

The following BMPs would be implemented as part of the SMP Update to reduce impacts on emergency access. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

BMP GEN-36: Public Outreach
BMP GEN-37: Implement Public Safety Measures
BMP GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures

Conclusion

Because of the temporary nature of proposed maintenance activities, and with implementation of these BMPs, impacts would be less than significant and no mitigation would be required.

Mitigation Measures: No mitigation is required.

Impact TR-4: Disruption of Alternative Transportation Facilities or Services (Significance Criteria A, D, E; Less than Significant)

The Proposed Project could interfere with level of service standards established by local or regional agencies for designated roads or highways, or with planned transit services or facilities. Proposed maintenance activities could require temporary road or lane closures.

The Proposed Project could interfere with planned bicycle facilities or conflict with/create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards. Furthermore, secure and safe bicycle parking could become temporarily unavailable at

specific work sites. In addition, work activities may affect bicycle facilities and require temporary lane closures.

Temporary sidewalk closures related to proposed maintenance work activities could cause short-term interference with planned pedestrian facilities, change accessible pedestrian facilities that meet current ADA best practices, or create inconsistencies with adopted pedestrian system plans, guidelines, policies, and standards.

Applicable Best Management Practices

The following BMPs would be implemented as part of the SMP Update to reduce impacts on level of service standards, transit services and facilities, bicycle facilities, and pedestrian facilities. Descriptions of each BMP are provided in Chapter 2, *Project Description.*

BMP GEN-36: Public Outreach
BMP GEN-37: Implement Public Safety Measures
BMP GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures

Conclusion

Because of the temporary nature of proposed maintenance activities, and with implementation of these BMPs, impacts would be less than significant and no mitigation would be required.

Mitigation Measures: No mitigation is required.

Impact TR-5: Insufficient Parking Capacity (Significance Criterion D; Less than Significant)

In general, Proposed Program-related parking would occur within SCVWD rights-of-way. For parking which is not able to be kept within these locations, it is generally anticipated that parking space in the Project Area would be sufficient to accommodate work staging and worker vehicle parking. Consequently, impacts related to parking would be less than significant.

Occasionally, maintenance work activities may occur within areas that contain limited parking spaces for worker vehicles. In this case, workers may need to park outside the immediate area affected. Although the increased walking distance from a parking space to the work site would be an inconvenience, this would be a temporary and less-than-significant impact.

Consequently, maintenance activity impacts related to parking would be less than significant.

Mitigation Measures: No mitigation is required.