5.12 Traffic and Transportation

5.12.1 Introduction

This section describes the existing traffic and transportation setting of the project area and surrounding areas, and evaluates whether the development of the proposed desalination plant and related facilities would result in adverse traffic and transportation impacts. Specifically, the evaluation focuses on whether the proposed project would conflict with applicable level of service standards or other relevant performance measures for congestion management, or result in short-term delays, access, or safety issues for any mode of transportation, including emergency vehicles, transit vehicles, bicycles, and pedestrians.

The description of the existing setting is based on existing daily traffic volumes for local roadways and other information provided in the *City of Santa Cruz General Plan 2030 Final Environmental Impact Report* (General Plan 2030 EIR) (City, 2012a), and California Department of Transportation (Caltrans) traffic data for highways in the project area. The evaluation of impacts is based on estimates of increased roadway traffic generated by construction and operational trips from the project. Additional information in this section related to environmental setting, regulatory framework, and the analysis of impacts and mitigation measures is derived from Section 5.12, Traffic and Transportation, of the *Integrated Water Plan Program Environmental Impact Report* (IWP Program EIR) (City, 2005a), as well as from other references as cited throughout this section[1].

Public and agency comments related to traffic and transportation were received during the public scoping period in response to the Notice of Preparation and are summarized below.

- Discuss traffic impacts during construction and operation of the project including, but not limited to, access and service needs.
- Provide a traffic analysis to assess construction-related impacts associated with City-District intertie improvements.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible and trustee agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report City of Santa Cruz and Soquel Creek Water District (scwd²) Regional Seawater Desalination Project**.

[1] Referenced documents in this EIR are available for review at the City of Santa Cruz Water Department offices at 212 Locust Street, Suite D, Santa Cruz, California 95060, Monday through Thursday 8:00 a.m. to Noon and 1:00 p.m. to 5:00 p.m., except holidays. Likewise, these documents are available for review at the Soquel Creek Water District offices at 5180 Soquel Drive, Soquel, CA 95073, Monday through Friday 8:00 a.m. to Noon and 1:00 p.m. to 5:00 p.m., except holidays.

5.12.2 Environmental Setting

The proposed desalination plant, the seawater intake pump station, and related piping would be located in the City of Santa Cruz (City), while the proposed intertie would be located within the City, portions of unincorporated Santa Cruz County (County), and the City of Capitola (Capitola). The environmental setting described below for the proposed project focuses on transportation and traffic conditions in the City, given that the intertie conveyance infrastructure in the County and Capitola would consist primarily of buried pipelines.

The study area for this topic includes the immediate project area of the various project components, as well as the major access routes into the project area, as described below.

Regional Setting

State Highways

State highways that go through study area or provide access into the project area include segments of Highways 1, 17 and 9. In particular, Highways 1 and 17 serve regional traffic travelling into and out of the area for employment, the delivery of goods and services, visitor and recreational opportunities, and so forth. These highways are further described below.

Highway 1 is the major inter- and intra-county route for Santa Cruz County that provides access to San Francisco to the north and Monterey to the south. Within the study area, Highway 1 is a four-lane arterial along Mission Street from the Westside of the City to Chestnut Street Extension; a four-lane expressway between Mission Street-Chestnut Street and River Street; and a four-lane freeway east of River Street. Recurrent congestion results in queuing on Highway 1 that extends for several miles during peak hours. Accidents, events, and other incidents in the corridor can further increase congestion related delays in either direction, on any day, including weekends (City, 2012a).

Highway 9 is a two-lane state highway that connects the City with the San Lorenzo Valley, and eventually, Saratoga and Los Gatos. Highway 9 begins in the City where River Street intersects with Highway 1. Approximately half a mile of Highway 9 is located within the City (City, 2012a).

Highway 17 connects the City with Scotts Valley, San Jose, and other Santa Clara County communities. From its southern terminus with Highway 1 in Santa Cruz, Highway 17 is a four-lane freeway. Congestion occurs both during weekday commute times and on summer weekends. This winding, four-lane road has steep sections, frequent road crossings, and substandard median shoulders and outside shoulders for most of its length. In addition to the challenging roadway configuration, weather-related conditions such as thick fog, heavy rains, and mudslides affect roadway operations (City, 2012a).

Local Roadways

Mission Street is a major four-lane east-west arterial from Swift Street to Chestnut Street Extension, and then continues farther east as Water Street. West of Swift Street, Mission Street is a two-lane roadway that is located just north of the proposed desalination plant site alternatives. As indicated above, Highway 1 follows Mission Street from the Westside of Santa Cruz to Chestnut Street Extension. Mission Street provides primary regional access to the alternative desalination plant sites.

Natural Bridges Drive is a two-lane, north-south collector. It provides access through the industrial area south of Mission Street and immediate access to the alternative desalination plant sites. The raw water transfer and brine discharge pipeline alignments are proposed along this roadway for Plant Site A-1.

Delaware Avenue is a two-lane, east-west arterial. It provides access through residential neighborhoods south of Mission Street and immediate access to the alternative desalination plant sites. The raw water transfer and brine discharge pipeline alignments are proposed along this roadway for Plant Sites A-1, A-2, and A-3.

Swift Street is a two-lane, north-south collector street, providing access to residential, commercial, and industrial areas south of Mission Street. The street terminates at West Cliff Drive and serves as an access to the beach area. The raw water transfer pipeline alignments for Intake Sites SI-7 and SI-16 are proposed along this roadway.

Almar Avenue is a two-lane collector street providing north-south circulation through neighborhoods south of Mission Street. The street terminates at West Cliff Drive and serves as an access to the beach area. The raw water transfer pipeline alignment for Intake Site SI-5 and one of the proposed brine discharge pipeline alignment alternatives are proposed along this roadway.

Woodrow Avenue is a two-lane collector street providing north-south circulation through residential areas. The street terminates at West Cliff Drive and serves as an access to the beach area. The raw water transfer pipeline alignment for Intake Site SI-4 is proposed along this roadway.

Pacific Avenue is a north-south arterial that traverses from Water Street/Mission Street through the Downtown commercial area to the Beach Area and Municipal Wharf at Beach Street, a primary tourist destination.

Beach Street is a two-lane one-way street that provides access to the Beach Area and Boardwalk. The raw water transfer pipeline alignment for Intake Sites SI-9, SI-17, and SI-18 are proposed near the western end of this roadway.

Morrissey Boulevard is a two-lane collector street with a landscaped central median that traverses residential areas between Soquel Avenue/Water Street and Highway 1. North of Highway 1, in the vicinity of the project area, the roadway becomes a two lane local street without a median. The upgrades to the Morrissey pump station and one of the proposed intertie segment alignment options (Morrissey Alignment Option) are proposed along the northern portion of this roadway.

Soquel Drive is a four-lane east-west arterial street in the study area that traverses through the County. A center left turn lane exists along much of its length. The intertie pipeline alignment is proposed along this roadway between the Highway 1 overpass where Soquel Drive begins on the west and Park Avenue on the east.

Park Avenue is a two-lane arterial roadway. The intertie pipeline alignment is proposed along this roadway between Soquel Drive on the north and McGregor Drive on the south. South of Highway 1, Park Avenue is within Capitola.

Transit Service

Regularly scheduled bus and shuttle services are provided by the Santa Cruz Metropolitan Transit District, which is the primary provider of public transit services in the study area. Bus routes run throughout the study area and County, including along Mission Street, Delaware Avenue, Soquel Drive, and Park Avenue.

Railroad tracks cross Santa Cruz County in an east-west direction and are used for limited freight movements and recreational trains during the summer (and limited days during the winter holidays). Commuter rail services are not provided in the project area.

Bikeways

The City, County, and Capitola have developed an extensive bikeway network in the study area consisting of primarily Class II and Class III bikeways and limited Class I bikeways. A Class I bikeway (bike path) provides a separated right-of-way for exclusive use by bicycles and pedestrians. A Class II bikeway (bike lane) provides a striped lane for one-way travel on a street or highway. A Class III bikeway is a facility shared with motorists and identified only by signs, and has no pavement markings or lane stripes. Within the study area, Natural Bridges Drive, Swift Street, and Delaware Avenue contain existing Class II bike lanes. In addition, Class II bike lanes also exist along Soquel Drive and Park Avenue. Class I bike lanes are limited to West Cliff Drive. Class III bikeways are identified as signed routes and include segments of Delaware Avenue, Soquel Avenue, and Almar Avenue.

Existing Traffic Conditions

Traffic Counts

As indicated in **Section 5.0, Environmental Analysis**, the environmental setting (also called baseline condition) is normally the physical condition that exists when the Notice of Preparation is published, establishing the baseline for this EIR as November 2010. This section describes the existing traffic conditions in the study area based primarily on the conditions described in the City's General Plan 2030 EIR, which were based on peak hour intersection traffic counts taken in 2006 and 2007 (City, 2012a). These counts were reviewed in 2011 to ensure their validity for use in the General Plan 2030 EIR (City, 2012a). Traffic counts taken for the General Plan 2030 EIR were compared to traffic counts taken in 2008 and 2009 that were obtained from the Santa Cruz County Regional Transportation Commission (SCCRTC). All but one of the counts the City made in 2006 and 2007 were higher than those reported by the SCCRTC, with the one higher count being outside of the study area for the proposed desalination project. Traffic counts were also compared to traffic volumes reported by Caltrans; overall the counts reported for 2006 were 8 percent higher than those reported in 2008 by Caltrans.

In the fall of 2010, the University of California, Santa Cruz completed new traffic counts at intersections within the City, as reported in the General Plan 2030 EIR. The baseline condition for the General Plan 2030 EIR was determined to be slightly higher overall than the 2010 counts by the University (City, 2012a), except for two intersections in the desalination project study area – Bay/West Cliff, and King/Storey. However, traffic from projects that were being constructed and/or occupied after the General Plan traffic counts were taken had been added to the General Plan baseline conditions, so the noted increases were already addressed in General Plan traffic model. Furthermore, the difference is within the daily deviation or fluctuation in traffic that can be expected throughout the City.

Overall, the City continues to see lower counts than were experienced in 2006. Thus, the traffic estimates made for the General Plan 2030 EIR were determined to be conservatively high and representative of a worst-case scenario for CEQA purposes (City, 2012a). As a result of this determination, the General Plan 2030 EIR baseline traffic estimates are also representative of a worst-case scenario for the proposed desalination project.

Traffic Conditions

Traffic conditions are characterized using the following three measures:

- Average daily traffic (ADT) is the total number of cars passing over a segment of the roadway, in both directions, on an average day.
- Peak hour traffic volumes are the total number of cars passing over a roadway segment during the peak hour in the morning (A.M.) or afternoon/evening (P.M.). In the City, the peak hour for weekdays occurs in the evening, which is from about 4 P.M. to 7 P.M., while the A.M. peak hour is typically between 7 A.M. and 10 A.M. (City, 2012a).

- Level of Service (LOS) is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

Weekday traffic within the study area consists primarily of commute traffic during the peak traffic periods, and a mix of trips generated by residential, commercial, and industrial uses throughout the day. A description of the existing traffic conditions on local roadways and state highways within the study area is provided below.

Local Intersection and Roadway Conditions

A quantitative LOS analysis was performed for various intersections for the General Plan 2030 EIR, based on the General Plan 2030 EIR traffic counts described above. The LOS analysis was based the Transportation Research Board's *2000 Highway Capacity Manual* methodologies. The LOS analysis indicates that most intersections in the study area operate at acceptable levels, as defined in **Section 5.3.3, Regulatory Framework**, apart from the intersections of Mission Street/Bay Avenue, River/Highway 1/Highway 9, and Ocean Street/Water Street (see **Table 5.12-1, Existing Intersection P.M. Peak Hour Level of Service**).

Intersection LOS is not available for the portion of Soquel Drive that is in the study area. However, ADT is available, based on data collected from the SCCRTC Monitoring Program for the Capitola General Plan update process (Capitola, 2011d). This data indicates that ADT on Soquel Drive is between 15,000 to 25,000, with 1,500 to 2,500 trips occurring during peak hours.

State Highway Conditions

Based on Caltrans 2010 traffic data, ADT on state highways within the study area is as follows:

- Highway 1, Morrissey Boulevard: ADT is approximately 88,000 to 97,000 trips, with 6,300 to 6,900 trips occurring during the peak hour (Caltrans, 2010). Highway 1 west of Morrissey Boulevard is currently operating at LOS D-E and congestion along Highway 1 extends for several miles during peak hours (Caltrans, 2011).
- Highway 1, between Morrissey Boulevard and Park Avenue: ADT ranges from 86,000 to 100,000 trips, with 6,500 to 7,800 trips occurring during the peak hour (Caltrans, 2010).
- Highway 17, between Santa Cruz and Scotts Valley. ADT is approximately 56,000 to 63,000 trips, with 5,700 to 6,300 trips occurring during the peak hour (Caltrans, 2010). Highway 17 near Pasatiempo Boulevard is currently operating at LOS F (Caltrans, 2006a).
- Highway 9 within Santa Cruz City Limits. ADT is approximately 5,000 trips, with approximately 510 to 550 trips in the peak hour, as measured at the City limits north of Encinal (Caltrans, 2010).

Table 5.12-1. Existing Intersection P.M. Peak Hour Level of Service

Intersection	P.M. Peak Level Of Service	Delay (in seconds)	V/C Ratio
Signalized Intersections			
Hwy 1/Western	LOS B		
Mission/Swift	LOS B		
Mission/Miramar	LOS B		
Mission/Almar-Younglove	LOS B		
Mission/Bay	LOS E	55.8	0.944
Mission/Laurel	LOS B		
Mission/Walnut	LOS B		
Mission/King-Union	LOS C		
Mission/Chestnut-Hwy 1	LOS D		
Mission/Center	LOS B		
River/Hwy 9/Hwy 1	LOS F	83.9	0.942
Ocean/Water	LOS E	73.6	1.081
Ocean/Kennan-Washburn	LOS A		
Ocean/Hwy 17	LOS C		
Market/Water	LOS C		
Morrissey/Water-Soquel	LOS C		
Unsignalized Intersections			
Hwy 1/Shaffer	LOS B		
Swift/Delaware	LOS C		
West Cliff/Bay	LOS C		
Beach/Pacific	LOS C		

Source: City of Santa Cruz, 2012a. General Plan 2030 Final Environmental Impact Report.
Acronyms:
P.M. = afternoon/evening LOS = Level of Service V/C = Volume/Capacity

Project Area Setting

The project area encompasses the local roadway network and other transportation facilities in and near the project area within the City, County, and Capitola. The following is a description of roadway and other transportation facilities at and near the various project components, as shown on **Figures 5.12-1a/b, Roadways**. **Section 4, Project Description**, should be referred to for a full description of the proposed project.

Seawater Intake and Conveyance System

The onshore components of the seawater intake and conveyance system include the intake pump station and the transfer piping from the pump station to the desalination plant. The street location of each alternative pump station location is identified in **Table 5.12-2, Roadways and Other Facilities along Pipeline Alignments**. Depending upon the pump station location, the raw water intake pipeline alignments would likely extend along the different roadway corridors shown in that table and on **Figure 5.12-1a**. The presence of bus stops and bike lanes along these corridors is also identified. Driveway access to residential and other uses also exist along these corridors.

Seawater Desalination Plant

The three desalination plant site alternatives are located within an area bounded by Natural Bridges Drive to the west, Delaware Avenue to the south, Swift Street to the east, and the Santa Cruz Branch Line railroad tracks to the north (see **Figure 5.12-1a**). Regional access to these sites is provided by Highway 1/Mission Street to the northwest and Highways 1 and 17 to the northeast. Immediate access to the desalination plant site alternatives is obtained from Delaware Avenue and/or Natural Bridges Drive. Bus stops are located on the western side of Natural Bridges Drive and along Delaware Avenue. Bike lanes exist on both sides of Natural Bridges Drive and Delaware Avenue in the vicinity of the plant site alternatives.

Brine Conveyance System

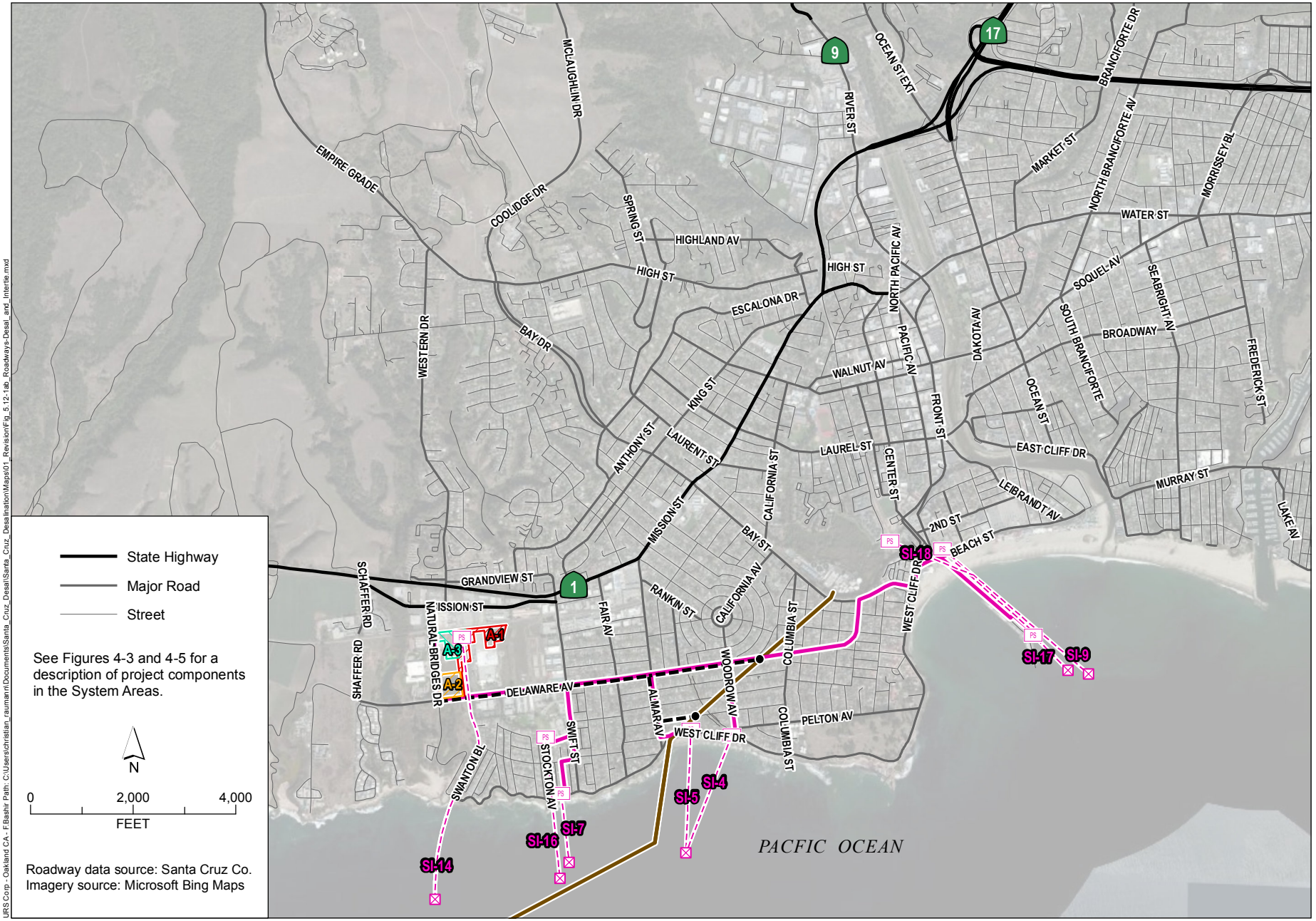
The brine discharge pipeline would connect to the City's WWTF outfall at one of two possible locations. Depending upon the connection point, the brine discharge pipeline alignment would extend along the different roadway corridors shown in **Table 5.12-2** and on **Figure 5.12-1a**. The presence of bus stops and bike lanes along these corridors is also identified in the table. Driveway access to residential and other uses also exist along these corridors.

Potable Water Distribution System Improvements

The City-District intertie pipeline would run from Morrissey Boulevard in the City, to the DeLaveaga water storage tanks, then through portions of the unincorporated County along Soquel Drive to Park Avenue, and into Capitola. The likely roadway locations and other transportation facilities along the pipeline alignments are shown in **Table 5.12-2** and on **Figure 5.12-1b**. Driveway access to residential and other uses also exist along these corridors.

Potential Energy Projects

The site for potential solar photovoltaic panels is the desalination plant site, described above. The site for the micro-hydro system is the basement of the Graham Hill Water Treatment Plant (GHWTP) located on Graham Hill Road. Given that the micro-hydro system would involve only interior improvements and no new staff or vehicle trips would result, the roads and other transportation facilities at and near the GHWTP are not described herein.



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City of Santa Cruz and Soquel Creek Water District
scwd² Regional Seawater Desalination Project

Figure 5.12-1a
Roadways - Desalination System Area

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City of Santa Cruz and Soquel Creek Water District
scwd² Regional Seawater Desalination Project

Figure 5.12-1b
Roadways - City-District Intertie System Area

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Table 5.12-2. Roadways and Other Facilities along Pipeline Alignments

Description	Street Location for Pipeline Route	Bus Stops	Bike Lanes
Seawater Intake Transfer Pipeline Alignment Alternatives			
SI-4, Pump Station at Woodrow/West Cliff Drive	Woodrow Avenue Delaware Avenue	Yes Yes	Yes Yes
SI-5, Pump Station at David Way/West Cliff Drive	West Cliff Drive Sunset Avenue Almar Avenue Delaware Avenue	No No No Yes	Yes No No Yes
SI-7, Pump Station at Merced Avenue/West Cliff Drive	Merced Avenue Modesto Avenue Swift Street Delaware Avenue	No No No Yes	No No Yes Yes
SI-9, Pump Station at Beach Street, just east of Pacific Avenue	Beach Street West Cliff Drive Bay Street Laguna Street Delaware Avenue	Yes No Yes Yes Yes	Yes Yes Yes Yes Yes
SI-14, Pump Station at Plant Site A-1/A-3	Delaware Avenue Swanton Boulevard	Yes Yes	Yes Yes
SI-16, Pump Station at Pacific Collegiate School field	Swift Street Delaware Avenue	No Yes	Yes Yes
SI-17, Pump Station at the Municipal Wharf	Municipal Wharf Beach Street West Cliff Drive Bay Street Laguna Street Delaware Avenue	No Yes No Yes Yes Yes	Yes Yes Yes Yes Yes Yes
SI-18, Pump Station at SCCRTC property leased for City Corporation Yard	Beach Street West Cliff Drive Bay Street Laguna Street Delaware Avenue	Yes No Yes Yes Yes	Yes Yes Yes Yes Yes
Brine Conveyance Connection Point Alternatives			
Connection Point at Delaware Avenue/Palmetta Street	Delaware Avenue Palmetta Street	Yes No	Yes No
Connection Point at Oxford Way, near David Way	Delaware Avenue Almar Avenue Oxford Way	Yes No No	Yes No No

Table 5.12-2. Roadways and Other Facilities along Pipeline Alignments

Description	Street Location for Pipeline Route	Bus Stops	Bike Lanes
Intertie Pipeline Alignment			
Morrissey Pump Station to DeLaveaga Tanks – Morrissey Alignment Option	Morrissey Boulevard	No	Yes
	Prospect Height	No	No
	Brookwood Drive	No	No
	City Right-of-Way	No	No
Morrissey Pump Station to DeLaveaga Tanks – Trevathan Alignment Option	Trevethan Avenue	No	No
	Prospect Height	No	No
	Brookwood Drive	No	No
	City Right-of-Way	No	No
DeLaveaga Water Storage Tank to City-District Intertie	City Right-of-Way	No	No
	Brookwood Drive	No	No
	Paul Sweet Road	No	No
	Commercial Way	No	Yes
	Soquel Drive	Yes	Yes
City-District Intertie to McGregor Pump Station	Soquel Drive	Yes	Yes
	Daubenbiss Avenue	No	No
	Walnut Street	No	Yes
	Porter Street	No	Yes
	Main Street	No	Yes
	Soquel Drive	Yes	Yes
	Park Avenue	Yes	Yes
	McGregor Drive	No	Yes

Acronyms: SCCRTC = Santa Cruz County Regional Transportation Commission

5.12.3 Regulatory Framework

The proposed project would be subject to applicable regulations pertaining to traffic and transportation. Regulations pertaining to traffic and transportation in the project area that are relevant to the analysis of project impacts are detailed below. See also **Section 5.4, Land Use, Planning, and Recreation** for additional evaluation of potential conflicts with relevant land use plans, policies, and regulations of agencies that have jurisdiction over the proposed project.

California Department of Transportation

Caltrans is responsible for all state-owned roadways and provides for planning, design, construction, operation, and maintenance of all of its facilities. Any improvements or modifications that would extend into the rights-of-way for a state highway or other state facility within the study area would need to be approved by Caltrans via an encroachment permit. The

Morrissey pump station upgrade could require a new encroachment permit or amendment of an existing permit.

Caltrans seeks to maintain a target LOS at the transition between LOS C and D on state highways. However, Caltrans acknowledges that this may not always be feasible and recommends that the Lead Agency consult with Caltrans to determine the appropriate target LOS (Caltrans, 2002). If an existing state highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained (Caltrans, 2002).

The target LOS for State Highway 1 west of Morrissey Boulevard is LOS D (Caltrans 2006a), and the target LOS for State Highway 17 south of Pasatiempo is LOS E (Caltrans 2006b). As discussed previously, Highway 1 west of Morrissey Boulevard is currently operating at LOS D-E (Caltrans, 2011), and Highway 17 operates at LOS F (Caltrans, 2006b), both below the target LOS. Therefore, in accordance with the Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002), the existing LOS for these two state highways should be maintained.

Association of Monterey Bay Area Governments

The Association of Monterey Bay Area Governments (AMBAG) is the federally designated Metropolitan Planning Organization for transportation planning activities in the tri-county Monterey Bay Region, which includes Monterey, San Benito and Santa Cruz Counties. AMBAG is not a regulatory agency, but rather the Lead Agency responsible for developing and administering plans and programs to maintain eligibility and receive federal funds for the transportation systems in this area. AMBAG provides the forum for cooperative decision making in the development of transportation plans, programs and recommendations. In addition to its transportation planning, study functions, and policy recommendations, AMBAG developed and maintains a regional travel demand forecasting model used for the planning of regional transportation facilities and the assessment of development proposals.

Santa Cruz County Regional Transportation Commission

The SCCRTC oversees planning and funding programs for local and regional projects within Santa Cruz County using state and federal transportation funds, and works in collaboration with AMBAG. Many local agency transportation projects are funded through grant programs administered by the SCCRTC.

City of Santa Cruz

The City Public Works Department is responsible for maintaining City-owned roads, bridges and related facilities. The adopted *City of Santa Cruz General Plan 2030* (General Plan 2030) (City, 2012c), along with the City's regulations and capital improvement programs, control development and transportation improvements within the City's jurisdiction. Relevant policies in the General Plan 2030 include: (1) implement congestion management programs, (2) ensure road safety, and (3) encourage interconnected road network to facilitate multi-modal transportation.

The City has established LOS D as the minimum acceptable LOS for all signalized intersection operations, and General Plan Policy M3.1.3 indicates that the City will strive to maintain that LOS or better at signalized intersections. However, Policy M3.1.4 accepts a lower level of service and higher congestion at major regional intersections, if necessary improvements would be prohibitively costly or result in significant unacceptable environmental impacts. City Code Chapter 10.85, Traffic Impact Fees for Capital Projects, requires that new developments pay traffic impact fees at the time of issuance of building permits. The fees are a project's "fair share" contribution to cumulative impacts on transportation and roadside facilities, and the fees help fund identified city-wide system improvements.

County of Santa Cruz

The County Public Works Department is responsible for maintaining County-owned roads, bridges, and related facilities in the unincorporated portion of the County. The *1994 Santa Cruz County General Plan and Local Coastal Program* (County General Plan) (County, 1994), along with the County's regulations and capital improvement programs, control development and transportation improvements within the County's jurisdiction.

County General Plan Policy 3.12.1 establishes LOS C as a service objective, but acknowledges LOS D as an acceptable minimum standard (where costs, right-of-way requirements, or environmental impacts of maintaining LOS under this policy are excessive, capacity enhancement may be considered infeasible). Additionally, the County General Plan includes policies and programs to establish a transportation system which would: (1) accommodate the travel demands of cumulative development projected by the County General Plan, (2) reduce traffic congestion, and (3) be within the County's ability to finance and operate. In particular, County Code Chapter 15.12, Transportation and Roadside Improvement Fees, requires that new developments mitigate their impacts on transportation and roadside facilities through assessment of fees on new development, which fund identified system improvements.

City of Capitola

Capitola Public Works Department is responsible for maintaining roads, bridges and related facilities in Capitola. The *City of Capitola General Plan* (Capitola General Plan) was adopted in 1989 and provides a comprehensive overview of future development in Capitola (Capitola, 1989). As defined in Policies 1 and 2 of the Circulation Element, LOS C is the minimum acceptable standard for circulation within Capitola, except within Capitola Village, where LOS D is the minimum acceptable standard.

5.12.4 Impacts and Mitigation Measures

This section contains the evaluation of potential environmental impacts associated with the proposed project related to traffic and transportation systems. The section identifies the standards of significance used in evaluating the impacts, the methods used in conducting the analysis, and a detailed evaluation of impacts for the proposed project and any potential future expansion.

Standards of Significance

Based on CEQA Guidelines Section 15065; Appendix G of the CEQA Guidelines; applicable agency plans, policies, and/or guidelines; and agency and professional standards; the proposed project would cause a significant impact related to traffic and transportation systems if it would:

12a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

12b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

12c. Result in a change in air traffic patterns that result in substantial safety risks;

12d. Substantially increase traffic hazards due to design features (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment);

12e. Result in inadequate emergency access; and/or

12f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

Analysis Methodology

The above standards of significance are assessed in this section as the basis for determining the significance of impacts related to traffic and transportation systems. If necessary, mitigation measures are proposed to reduce significant impacts to less than significant.

As indicated in **Section 5.12.3, Regulatory Framework**, the City considers LOS D or better to be acceptable for signalized intersections (Policy M3.1.3). A significant impact would result if the level of service dropped below LOS D or if a project would contribute traffic increases of more than three percent at intersections currently operating at unacceptable levels[2] (LOS E or F).

[2] For City intersections that already operate at unacceptable levels of service (LOS E or F), the City considers project impacts to be significant if congestion will measurably worsen at the intersection as a result of the project. "Measurably worse" is considered to be a three percent increase in trips at the affected intersection. The City has used the three percent significance criterion for project trip contribution at existing impacted intersections, in part based on directives in the City's General Plan 2030 to accept a certain level of congestion during peak hours at major intersections, as well as to reflect variations in daily traffic volumes. The 3three percent criterion has been used throughout the City and is based upon Caltrans' data that shows variation in daily traffic conditions (City, 2012a).

The City's General Plan 2030 also accounts for accepting a level of service below LOS D at major regional intersections where improvements would be prohibitively costly or result in significant, unacceptable environmental impacts (Policy M3.1.4). There are no other adopted plans, ordinances or policies that establish "measures of effectiveness" for the performance of the circulation system within the City. Both the County and Capitola use LOS C as their objective, with provisions for accepting LOS D under certain circumstances (County) or in particular locations (Capitola).

The Caltrans target levels of service for the state highways are also provided above in **Section 5.12.3, Regulatory Framework**. The target level of service for State Highway 1 west of Morrissey Boulevard is LOS D, and the target level of service for State Highway 17 south of Pasatiempo is LOS E. However, given that Highway 1 west of Morrissey Boulevard operates at LOS D-E, and Highway 17 operates at LOS F, the proposed project would result in a significant impact if the existing levels of service cannot be maintained in accordance with Caltrans' guidelines.

The approach for the evaluation of construction and operational effects of the proposed project is further described below.

Project Construction

Construction of project components would have temporary effects on segments of the roadway network in the project area by increasing traffic volumes on roads that provide access to the construction work areas. Construction characteristics, including proposed labor and equipment, location of construction, and construction schedule were used to conservatively estimate the number of vehicles that would be required for the construction of the project over the 30- to 32-month construction phase (see **Appendix N, scwd² Regional Seawater Desalination Project EIR Project Construction Assumptions**). Most of the construction-related trips would likely occur between 6:00 A.M. to 7:00 A.M. and 3:00 P.M. to 4:00 P.M., which are outside of the typical A.M. and P.M. peak hours within the project area.

Project Operations

The desalination plant would operate 24 hours a day, 365 days a year. The proposed plant would be staffed by up to six full-time equivalent operators, two part-time maintenance workers and one part-time supervisor with a total of nine employees. Truck deliveries for equipment and supplies are expected to average about five per week. The maximum number of trucks on any given day is expected to be five during the operation of the plant, assuming all weekly trips occur on a single day. If the landfilling option of disposing of solids from the desalination plant is pursued, up to one additional daily truck trip would result for a total of six truck trips.

In addition, one tour per day of the desalination plant could be conducted, with up to 40 persons. However, none of these trips would occur during the A.M. or P.M. peak hours, as the tours would be scheduled outside the peak hour periods of 7:00 A.M. to 10:00 A.M. and 4:00 P.M. to 7:00 P.M.,

as indicated in **Section 4, Project Description** (see **Table 4-12, Summary of Environmental Design, Construction, and Operational Features**).

No other project components (e.g., pump stations or pipeline sections) would result in permanent daily operational trip generation other than periodic maintenance-related trips.

Impacts and Mitigation

This section provides a detailed evaluation of traffic and transportation impacts associated with the proposed project. The analysis addresses traffic impacts related to level of service or other measures of effectiveness (standards 12a and 12b) and impacts related to emergency access (standard 12e).

As indicated in the IWP Program EIR (Section 5.12) and in the Initial Study (see **Appendix A**), the proposed project would not affect alternative transportation facilities (such as bike paths, bike lanes, transit facilities), given the location of the various project components and the short-term nature of construction activities. Therefore, the proposed project would not conflict with adopted plans related to such facilities (standard 12f). In addition, the proposed project would not result in traffic hazards due to design features or incompatible uses as there are no planned modifications to roads or transportation systems (standard 12d), or safety risks due to changes in air traffic patterns as there are no airports in the project vicinity (standard 12c). Therefore these topics are not further evaluated in this EIR.

The impacts to traffic and transportation resources are summarized in **Table 5.12-3, Summary of Potential Traffic and Transportation Impacts,** and are categorized as either "not applicable" or "no impact," "less than significant impact," "less than significant impact with mitigation," or "significant and unavoidable impact." The detailed analysis of traffic and transportation impacts, and mitigation measures if applicable, follows this table.

Table 5.12-3. Summary of Potential Traffic and Transportation Impacts

Impacts	LEVEL OF SIGNIFICANCE													
	Seawater Intake Site Alternatives								Plant Site Alternatives			Other Components	Project Overall	Possible Future Expansion
	SI-4	SI-5	SI-7	SI-9	SI-14	SI-16	SI-17	SI-18	A-1	A-2	A-3			
5.12 1: Traffic	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
5.12 2: Emergency Access	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

Notes:
SU = Significant and Unavoidable Impact
LTSM = Less Than Significant Impact With Mitigation
LTS = Less Than Significant Impact
NI = No Impact
-- = Not applicable

TRAFFIC	
Impact 5.12-1:	Construction and operation of the proposed project and related vehicle trips would not cause an increase in traffic that would conflict with applicable level of service standards or other relevant measures of effectiveness.
Significance:	Less than significant
Mitigation Measures:	None required

Proposed Project

Project Construction

Construction of the proposed project would take place at the various project component locations in the project area. Onshore facilities include the seawater intake pump station and conveyances for raw seawater and brine, desalination plant, pump station upgrades at up to two locations, and the City-District intertie system. Construction schedules for the various components would overlap over a 30 to 32-month period.

Construction workers and delivery trucks would access the project area via Highway 1 and other local roadways. Construction of the proposed project would temporarily increase the number of vehicle trips in the vicinity of the proposed desalination plant sites, along roadways where the other proposed project components would be located and along primary access routes. This temporary increase in vehicle trips would result from construction workers arriving and leaving the work sites each day, and from trucks and equipment deliveries to and from the work sites.

During construction, the proposed project would be expected to generate a maximum of approximately 135 total daily trips, of which approximately 68 would occur during the A.M. and P.M. peak hours over the course of the 30- to 32-month construction schedule as summarized on **Table 5.12-4a, Construction Trip Generation**. Approximately 37 peak hour trips would be related to the desalination plant construction, while the remaining peak hour trips would be spread out among the other work sites. This is an overly conservative estimate of the construction-phase peak hour trip contribution, as most of the construction-related worker commute trips would likely occur between 6:00 A.M. to 7:00 A.M. and 3:00 P.M. to 4:00 P.M., which are outside of the peak hours within the immediate vicinity of the project area.

Construction-related trips would be dispersed across the various work sites for the different project components, thus minimizing the effect on traffic flow on specific roadways in the project area. Additionally, the number of onsite workers would vary throughout the construction phases, and truck and equipment-related deliveries would be spread out over the construction work day. Given the above, temporary construction traffic would not cause a substantial increase in traffic relative to existing conditions or contribute substantial volumes of traffic during peak

hours that would cause a permanent degradation of level of service or substantial increase in delay. Therefore, construction traffic would not conflict with applicable LOS targets or other measures of effectiveness, and the impact would be less than significant.

Table 5.12-4a. Construction Trip Generation

Use	Daily Trips		A.M. Peak Hour[1]			P.M. Peak Hour[1]		
	Rate	Total	In	Out	Total	In	Out	Total
Plant Site								
80 Construction Workers[2,3]	0.7	56	27	7	34	7	27	34
Materials and Equipment Delivery and Hauling Trips[4]	—	16	3	0	3	0	3	3
Other Components								
64 Construction Workers[2,3]	0.7	45	22	5	27	5	22	27
Materials and Equipment Delivery and HaulingTrips[4]	—	18	2	2	4	2	2	4
Total	—	135	54	14	68	14	54	68

Notes:
1. The P.M. peak hour is between 4 P.M. to 7 P.M. and the A.M. peak hour is between 7 A.M. to 10 A.M.
2. It is assumed that an average of three construction workers would travel to the construction sites in one vehicle.
3. It is conservatively assumed that 60 percent of the daily construction worker trips would occur during the peak hours.
4. It is assumed that approximately 20 percent of the daily materials and equipment delivery trips would occur during the peak hours.

Construction of some of the proposed project components would affect access to adjacent properties and streets for both general traffic and emergency vehicles, and result in temporary traffic disruption and short-term traffic delays. Construction of the desalination plant facility at any of the plant site alternatives would not result in traffic delays or access issues, as the plant itself would be located outside of the adjacent City rights-of-way on Delaware Avenue and Natural Bridges Drive and would therefore not encroach on these roadways. However, the delivery of major construction equipment to the plant site, or installation of utility connections (e.g., water, sewer, electricity, natural gas) in the public right-of-way would have the potential to result in short-term lane closures in the immediate vicinity of the plant site, which could result in traffic delays and access issues along Delaware Avenue and/or Natural Bridges Drive. Short-term lane closures could also occur during the construction of the seawater intake pump station and upgrades to the pump stations on the City-District intertie portion of the project during equipment deliveries and due to equipment laydown areas.

Construction of the potential micro-hydro system at the GHWTP would take place inside the plant and would not result in any construction in public roadways or traffic disruptions. Construction of the raw water, brine discharge, and potable water pipelines would take place primarily within paved public roadways and would result in short-term delays and traffic

disruptions due to lane closures, as construction progresses along the various pipeline corridors. Temporary lane and street closures on various local streets (see **Table 5.12-2**) would be required to allow for activities such as construction staging, trenching, pipe installation, backfilling, and equipment maneuvering. Pipeline corridors and associated construction would pass through residential neighborhoods and commercial areas. Short-term street closures would be required where the pipeline corridor crosses an intersection; however, pipeline construction would progress quickly (on average approximately 200 feet per day) and therefore, such street closures would be temporary. Access to driveways could also be temporarily blocked due to trenching and paving.

During times of temporary lane closures or work in public roadways, traffic control measures would be implemented in accordance with City requirements (Municipal Code Chapter 15.34.020) and County requirements (County Code Chapter 9.70). The environmental design features provided below would minimize the disruption to traffic flow related to temporary lane closures or other construction activities that encroach in the public roadways. The impact would be less than significant.

Project Operation

Operation of the proposed project would result in an increase of approximately 35 daily trips and 10 trips in the peak hour, as summarized on **Table 5.12-4b, Desalination Plant Operational Trip Generation**. This increase in vehicle trips would result from employees traveling to and from the proposed desalination plant, truck deliveries, and maintenance crews arriving and leaving various project components for routine maintenance, such as at the intake pump station. As indicated in **Section 4** and in the environmental design features below, plant tours would be scheduled to occur outside the peak hour travel periods. Therefore, vehicle trips associated with plant tours would not contribute to peak hour traffic congestion.

Table 5.12-4b. Desalination Plant Operational Trip Generation

Use	Daily Trips	A.M. Peak Hour[1]			P.M. Peak Hour[1]		
	Total	In	Out	Total	In	Out	Total
Desalination Plant Workers (9 total)	9	7	2	9	2	7	9
Truck Delivery Trips and Maintenance[2]	6	--	--	1	--	--	1
Plant Tours[3]	20	0	0	0	0	0	0
Total	35	7	2	10	2	7	10

Notes:
1. The P.M. peak hour is between 4 P.M. to 7 P.M. and the A.M. peak hour is between 7 A.M. to 10 A.M.
2. Truck deliveries for equipment and supplies are estimated to average about five trips per week with one potential trip to the landfill to dispose of solids, for a total of six trips, with a worst-case assumption that all truck trips occur on one day. It is assumed that approximately 20 percent of the truck delivery trips would occur during the peak hours.
3. Assumes one tour per day of 40 people with two people per car, with all trips occurring outside the A.M. and P.M. peak hours, per Table 4-12, Environmental Design, Operation, and Construction Features.

Increases in vehicle trips due to the operation of the proposed project would be permanent. Operation of the desalination plant would result in up to a maximum of nine vehicular trips from staff during each of the A.M. and P.M. peak traffic commute hours. The maximum number of trucks on any given day is expected to be five during the operation of the plant, assuming all weekly trips occur on a single day. If the landfill option for disposing of solids from the desalination plant is pursued, up to one additional daily truck trip would result for a total of six. Based on the above, it is conservatively projected that on any given day the operation of the proposed desalination plant would generate a maximum of ten vehicular trips during the A.M. and P.M. peak hours. No other project components (i.e., pump stations, pipeline sections, or the potential energy projects) would result in permanent daily operational trip generation other than periodic maintenance-related trips. This permanent increase in vehicle trips would be minimal and would not result in a noticeable effect on level of service or delay at intersections in the vicinity of the proposed desalination plant along Delaware Avenue, Swift Street and/or Mission Street. Nor would the estimated ten peak hour trips substantially worsen conditions or delays at the degraded intersections identified in **Table 5.12-1** (Mission/Bay) or on Highway 1. Therefore, operational traffic would not conflict with applicable LOS targets or other measures of effectiveness and the impact would be less than significant.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed inside existing structures at the plant and at the intake pump station. Construction trips associated with future expansion would be temporary and unsubstantial and would not result in significant traffic increases on study area roadways that would conflict with LOS targets and the impact would be less than significant.

If future expansion of the desalination plant or the intake pump station were to result in temporary lane closures or construction work in the public right-of-way, the environmental design features provided below would minimize the resulting disruption to traffic flow, in accordance with City requirements (Municipal Code Chapter 15.34.020) and County requirements (County Code Chapter 9.70).

Additionally, it is not expected that any future expansion of the desalination plant would result in a significant number of new employees or new vehicle trips. Therefore, operational traffic associated with any future expansion would not conflict with applicable LOS targets or other measures of effectiveness and the impact would be less than significant.

Environmental Design Features

The environmental design features (**Section 4**, **Table 4-12**) of the proposed project related to traffic include the following:

1. Prior to construction, prepare and implement a traffic control plan or plans for the affected roadways and intersections for the various pipelines and any other construction

in roadways. The traffic control plan(s) must comply with the affected jurisdiction's encroachment permit requirements and will be based on detailed design plans. The affected jurisdiction will review and approve the plan(s) prior to construction. The traffic control plan(s) will include, but not be limited to the following measures:

- Limit the construction work zone in each block to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone using appropriate signage and flagmen. If this cannot be achieved, a detour plan will identify appropriate and safe detour routes and installation of signage warning of road closure and detour routes.

- Identify areas where construction traffic and construction activities will be limited to non-peak hours to reduce traffic flow restrictions or delays, such as temporary road closures required when a pipeline corridor crosses an intersection.

- Prepare a truck routing plan for each work site to minimize impacts from construction truck traffic during equipment or material delivery and/or disposal.

- Provide continued access to individual properties adjacent to construction sites and ensure that emergency access will not be restricted. Maintain steel trench plates at the construction sites to restore access across open trenches, as needed. During non-working hours or in the event of an emergency, trenches will be covered with such plates or backfilled.

- Access for emergency vehicles will be maintained at all times. The emergency service providers will be notified of the timing, location, and duration of construction activities throughout the construction period.

- If the seawater intake will be located at the Municipal Wharf (SI-17) or one of the Beach Area (SI-9) or West Cliff Drive (SI-4, SI-5, or SI-7) locations, the traffic control plans will minimize or avoid temporary loss of parking and lane closures in these coastal locations due to worker parking and construction staging. Remote parking and staging will be used where necessary to accomplish the above. Minimal construction staging would take place on the Municipal Wharf.

2. Conduct tours of the plant outside the A.M. and P.M. peak hours. The peak hours are currently defined as roughly 7 A.M. to 10 A.M. (A.M. peak) and 4 P.M. to 7 P.M. (P.M. peak).

Mitigation Measures

None required.

EMERGENCY ACCESS

Impact 5.12-2: Construction and operation of the proposed project would not result in inadequate emergency access for emergency vehicles.

Significance: Less than significant

Mitigation Measures: None required

Proposed Project

Project Construction

Construction of the raw water, brine discharge, and potable water pipelines would take place primarily within paved public roadways and could potentially interfere with emergency access and response. Construction activities would generate traffic related to construction workers and equipment, and the hauling of fill and construction material to and from the pipeline corridors. The presence of large and slow-moving vehicles and construction equipment on streets in the project area could restrict emergency access. Additionally, project construction activities associated with pipelines would likely result in temporary lane and road closures on various local streets (see **Table 5.12-2**) to allow for construction staging, trenching, pipe installation, backfilling, and equipment maneuvering, which could further restrict emergency access. Pipeline corridors would also pass through residential neighborhoods and commercial areas and access to driveways could be temporarily blocked due to trenching and paving.

As indicated in Impact 5.12-1, traffic control measures would be implemented in accordance with City requirements (Municipal Code Chapter 15.34.020) and County requirements (County Code Chapter 9.70). These environmental design features would minimize the disruption of access for emergency vehicles related to temporary lane closures or other construction activities that encroach in the public roadways. Therefore, impacts related to emergency access would be less than significant.

Project Operation

Vehicle and truck access driveways to the proposed desalination plant would be provided from Delaware Avenue and/or Natural Bridges Drive, depending on the plant site alternative under consideration (see **Section 4, Project Description**). Internal roads within the plant site would also be provided to allow for vehicle and truck access to buildings and other facilities within the plant site for deliveries, maintenance, and other process activities. All driveways, internal roads, and the loading dock would be designed in accordance with the City Municipal Fire Code (Chapter 19.05), and other relevant portions of the Municipal Code, which would ensure that adequate provisions are made for emergency vehicle access into and through the plant site.

A vehicle and truck access driveway to the proposed seawater intake pump station would be provided from adjacent roadways (SI-4, SI-5, SI-7, SI-9, SI-14, SI-16, SI-18), or the Municipal Wharf (SI-17) (see **Section 4, Project Description**). This access would provide for maintenance activities at the intake pump station. For most sites, no internal roads would be required given the limited size of the facility. However, the SI-9 pump station, located at the southern edge of the Edgewater Beach Motel, would likely need to provide for continued through access to/from Beach Street for the motel for emergency purposes. The driveway and internal road/lane would be designed in accordance with the City Municipal Fire Code (Chapter 19.05), and other relevant portions of the Municipal Code, which would ensure that adequate provisions are made for emergency vehicle access into the site, as required. Therefore, impacts related to emergency access would be less than significant.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed inside existing structures at the plant, and at the intake pump station. No new construction activity is anticipated along the pipeline corridors that could restrict emergency access. Expansion of the plant would not eliminate any internal roadways at the plant site and therefore would not have any additional effect on emergency access. Therefore, impacts related to emergency access would be less than significant.

Mitigation Measures

None required.