

SECTION 5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION/METHODS

As required by Section 15130 of the CEQA Guidelines, this EIR analyzes whether the Proposed Project may have a significant impact on the environment due to cumulatively considerable environmental impacts, even when the environmental impacts are individually limited. Cumulatively considerable, as defined by Section 15065(c) of the CEQA Guidelines, means the incremental impacts of an individual project are considerable when viewed in connection with the related impact of recent past projects, other current projects and probable future projects. Section 15355 of the CEQA Guidelines defines cumulative impacts as "...two or more individual environmental effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts may result from individual effects of a single project or the effects of several projects that are developed within a particular window of time.

The scope of the cumulative analysis varies by environmental topic, because cumulative projects that are relevant to one issue may not be to another. For example, projects that would contribute to cumulative traffic impacts are substantially unrelated to projects that would be relevant to cumulative marine biological resources.

The list of cumulative projects identified in *Table 5-1 Cumulative Projects*, is intended to be comprehensive list of cumulative projects that would have the potential to result in cumulative impacts when considered in conjunction with the proposed project. The overall effect of cumulative projects and the proposed project are described and analyzed in this section.

5.2 CUMULATIVE PROJECTS

Table 5-1 Cumulative Projects, summarizes all projects within the above outlined study areas. This table provides information relating to the type of project related to the proposed Carlsbad Seawater Desalination Plant and identifies the lead agency.

**TABLE 5-1
CUMULATIVE PROJECTS**

Project Name	Location (Lead Agency)	Description
New Venture Church Expansion	Mystra Drive, north of Cannon Road (City of Oceanside)	East campus site development (6.5 acres) connection of two church campuses via sky bridge
Seagate Terrace	Ocean Hills Community – Oceanside (City of Oceanside)	Existing community with 71 single family homes
Ocean Hills	Leisure Village Way- Oceanside (City of Oceanside)	Existing community with 1,600 units and a private golf course
St. Thomas More Catholic Church	1450 South Melrose Drive – Oceanside (City of Oceanside)	Existing Religious facility
Sprinter Commuter Rail Service	On existing freight rail line between Oceanside and Escondido, largely parallels Highway 78 – Oceanside to Escondido (North County Transit District)	Diesel Multiple Unit passenger rail system, with a total of 12 rail vehicles (approximate 452 passenger capacity each) and 15 stations, along 22- miles of existing rail line. The project includes 11.5 miles of single track and 10.5 miles of passing track. 1.7 miles of new alignment will be constructed around the California State University Campus at San Marcus.
Cannon Road Extension	Cannon Road- from current terminus at College Boulevard to City of Oceanside (City of Carlsbad)	Public facility improvement that would connect the cities of Oceanside and Carlsbad
Rancho del Oro	West of College Boulevard, south of Old Grove Road and north of Avenida de la Plata (City of Oceanside)	152 acre project – 102 single family detached homes and corporate business park
Corner Store	West of College Boulevard, south of Avenida de la Plata	23,000 square foot office park
Quarry Creek	West of College Boulevard, abutting southern city of Oceanside Boundaries	372,000 square foot retail center
Del Oro Market Place	South of Oceanside Boulevard, approximately 0.125 acre west of College Boulevard	100,000 square foot commercial center
Lighthouse Christian Church	North of Mesa Drive, east of College Boulevard	Preschool and church
College Plaza Revision	East of College Boulevard and north of Plaza Drive	Remodel and edition to existing retail shopping center
Mossy Nissan	South of Haymar Drive, approximately 0.125 miles west of College Boulevard	Renovation of existing automobile dealership
New West Petroleum	West of College Boulevard, south of Lake Boulevard extension	Remodel of existing gas station
Pacific Coast Business Park	West of College Boulevard, south of Old Grove Road in the Rancho del Oro area.	30 Industrial lot master plan to establish updated development regulations for industrial and business park uses.
North Coast Church	North side of N. Santa Fe (City of Vista)	Construction of a nine buildings totaling 365,000 square feet and 2,300 parking spaces.
Maryland Drive Elementary	Southwest corner of North Avenue and Maryland Drive- Vista (City of Vista)	Construction and operation of an elementary school for 750 students on a 17.59- acre site
N. Melrose Auto/Industrial Building	East side of N. Melrose Drive between North Avenue and Bobier Drive/ Oceanside Boulevard- Vista (City of Vista)	Construction and operation of a 17,029-square- foot automotive repair facility and a 56,735-square-foot industrial building on a 5.3-acre site.
Watson Antiques Commercial Building	Northeast corner of N. Melrose Drive and North Avenue- Vista (City of Vista)	Construction and operation of a 12,062-square-foot commercial/industrial building on 0.9 acre.

**TABLE 5-1
CUMULATIVE PROJECTS**

Project Name	Location (Lead Agency)	Description
Maryland Drive 15-Lot Tentative Subdivision Map	East side of Maryland Drive north of Highland Drive and west of N. Melrose Drive- Vista (City of Vista)	Construction of a 15-lot single-family subdivision on 2.82 acres.
Lowe's Home Improvement Warehouse	North of the 78 and east of Melrose-Vista (City of Vista)	Existing 160,000 square foot retail space featuring a garden center on a 12-acre site and linked to Vista Village through pedestrian and vehicular connections.
Home Depot	2430 S. Melrose Dr. – Northeast corner of S. Melrose Drive/Park Center Drive (City of Vista)	Construction of a 142,173 square foot Home Depot home improvement warehouse and garden center, and separate 7,150 square foot retail/restaurant building.
Buie Breeze Hill Condominiums	455 S. Melrose Drive – west side of Melrose north of Breeze Hill Road (City of Vista)	Construction of a 119 unit condominium project.
United Methodist Church of Vista	490 S. Melrose Dr. – Northeast corner of S. Melrose Drive and Matagual/Breeze Hill Rd. (City of Vista)	A 26,416 sq. ft. church and K-8 private school (200 students) on a 4.89-acre site.
South Melrose Drive Office Building	326 S. Melrose Drive – east side of Melrose south of Hacienda Drive (City of Vista)	Construction of an 18,963 sq. ft., two story office building.
Vista Unified School District Continuation High School	215 N. Melrose Dr. – southeast corner of N. Melrose Drive and Copper Drive (City of Vista)	Construction of a continuation high school for approximately 500 students on 5.25 acre site.
Raceway Basin Pump Station	Western boundary of the City of Vista near Melrose Drive (City of Vista/ Buena Sanitation Districts)	Replace old structure with new station to pump sewage from the Raceway service area to into the Buena Force Main and treated at the Encina Wastewater Authority Treatment Plant.
Coastal Rail Trail	Along NCTD right of way in the City of Carlsbad, cutting to the east side of the Cabrillo Power Generating Facility and along the southern portion of the lagoon(City of Carlsbad)	A hiking and biking trail adjacent to the railway between Oceanside and Del Mar.
Cannon Court	Northwest corner of Cannon Road and I-5 (City of Carlsbad)	67,000 square feet of hotel and commercial.
Bob Baker Vehicle Storage	South of Cannon Road between Avenida Encinas and the NCTD Right-of-way (City of Carlsbad)	
Carlsbad Office Campus	Between Avenida Encinas and NCTD Right-of-way, north of Palomar Airport Road (City of Carlsbad).	Four 3 story office buildings of 276,000 square feet and 82,000 square foot parking structure.
Kirgis/Wilson Property	South of Kelly Ranch development and north of Faraday Avenue (City of Carlsbad)	7 lot single family development
SDP-0408	East of Palmer Way and north of Faraday Avenue (City of Carlsbad).	120,000 square foot industrial building.
Carlsbad Corporate Center	West of Orion, east of El Camino Real, south of Faraday Avenue (City of Carlsbad)	4 office buildings of 105,000 square feet.
Fox- Miller Property	North of Faraday Avenue and west of El Camino Real (City of Carlsbad)	390,000 square feet of industrial, office and commercial property
The Plaza at Sunny Creek	Northwest corner of College Blvd. and El Camino Real (City of Carlsbad)	174,000 square foot shopping center.
Balfour Court Office Condos	North of McClellan Palomar Airport between Balfour Court and Farnsworth (City of Carlsbad)	
Palomar Pointe	North of McClellan Palomar Airport, south of Aston Avenue, and west of Palomar Oaks Way (City of Carlsbad)	3 buildings of 82,000 square feet.

**TABLE 5-1
CUMULATIVE PROJECTS**

Project Name	Location (Lead Agency)	Description
Cantarini- Holly Springs	Southeast of the College Boulevard and Cannon Road Intersection (City of Carlsbad)	Residential development of approximately 250 acres and infrastructure improvements such as water and sewer facilities.
Carlsbad Municipal Golf Course	Northwestern quadrant of city of Carlsbad. North of Palomar Airport Road, bisected north to south by College Boulevard. The western boundary is Hidden Valley Road and the eastern boundary is Carlsbad Research Center/ McClellan- Palomar Airport (City of Carlsbad)	Construction of an 18 hole championship golf course, clubhouse, maintenance facility, driving range, conference center, and pads for planned industrial/ golf related uses on 397 acres.
Carlsbad Ranch Specific Plan	North of Palomar Airport Road, south of Cannon Road extension, east of Paseo Del Norte and west of the LFMZs 5 and 8 (City of Carlsbad)	Development of 28.93 acres of Gemological Institute of America campus, 40.01 acres of office/ research and development, 10.48 acres of community hotel and retail, 128.32 acres of LEGOLAND, 52.8 acres of resort, 26.65 acres of specialty retail, 53.42 acres of flower field preservation, 72.07 acres of golf course, 10 acres of naturally open space, 21.16 acres of the SDG&E parcel use for gold course use, and improvements to the I-5/ Cannon Road Interchange.
Carlsbad Oaks North Specific Plan	North of Palomar Airport Road, south of Dawson- Los Monos Reserve, east of El Camino Real, and west of the City of Vista (City of Carlsbad)	Development of 414- acre planned industrial park of 23 industrial lots, 3 open space lots, and 1 employee picnic area lot. The project also includes extension of Faraday Avenue and El Fuerte Street and construction of a segment of the South Agua Hedionda Sewer interceptor.
Calavera Hills Master Plan Amendment	South of SR-78, north of the Rancho Carlsbad mobile home park, east of Carlsbad Village Dr, and West of Lake Calavera (City of Carlsbad)	Modification of land use (819 acres), rearrangement of residential densities, construction of portions of College Blvd and Cannon Road, installation of two detention basins.
Kelly Ranch	South of El Camino Real, north of College Blvd (City of Carlsbad)	432 acre single family residential and associated infrastructure (roads, water, sewer).
Carlsbad Raceway Business Park	North of Palomar Airport Road and east of Melrose Drive (City of Carlsbad)	Subdivision of 146.3- acre parcel into 25 industrial lots and 3 open space lots.
Palomar Forum Business Park	North of Palomar Airport Road and east of Melrose Drive (City of Carlsbad)	13- lot industrial subdivision of 70.6- acre parcel, involving a General Plan amendment and zone change.
Bressi Ranch	South of Palomar Airport Road, east of El Camino Real, and west of Melrose Drive (City of Carlsbad)	623 residential units, 2,100,500 square feet of industrial space, 130,000 square feet of commercial, and 138,000 square feet of community facilities. Offsite placement of a sewer line south of the project might be required.
Robertson Ranch	East of El Camino Real between Tamarack and Cannon Road (City of Carlsbad)	Master planned community on 403 acres with 1,100 residential homes, commercial, educational, recreational, and open space.
Gemological Society of America Institute Parking Lot Expansion (SDP 94096)	Along Cannon Road, east of I-5 (City of Carlsbad)	Inclusion of a 500 to 700 space parking lot outside of their facility buildings
Hub Park/ SDG&E Property	South of Agua Hedionda Lagoon, north of Cannon Road, west of Kelly Ranch (City of Carlsbad)	Regional Park
Palomar Airport Master Plan	Palomar Airport	Airport Expansion Projects
Opportunistic Beach Fill Program	Buena Vista Site south of Buena Vista Lagoon to just south of Carlsbad Village Drive; Agua Hedionda Site south of the warm water jetty	Ongoing program renourishing the Carlsbad beaches and the Oceanside Littoral Cell with surplus, beach- quality sand from upland construction, development or dredging projects.

**TABLE 5-1
CUMULATIVE PROJECTS**

Project Name	Location (Lead Agency)	Description
	adjacent to the Carlsbad Boulevard entrance of the Encina Power Station; Encina Beach Site south of Solamar Drive and north of Island Way along Carlsbad Blvd (City of Carlsbad)	Sand material would be transported from these construction projects to the sites by truck.
I-5 Recycled Water Transmission Line	North and south Carlsbad City limits along Interstate- 5	Transmission Line
Cannon Road Traffic Signals	Intersections of Cannon Road and Avenida Encinas, Car County, College Boulevard (City of Carlsbad)	Traffic Signals
College Blvd Traffic Signals	Intersections of College Blvd and Carlsbad Village Drive, Tamarack South and Tamarack North (City of Carlsbad)	Traffic Signals
Faraday Avenue Traffic Signals	Intersections of Faraday Avenue and Cannon Road, Priestly Drive, Camino Hills Drive, Orion Street, and Rutherford Road (City of Carlsbad)	Traffic Signals
Palomar Airport Road and Melrose Drive Traffic Signal	Intersection of Palomar Airport Road and Melrose Drive (City of Carlsbad)	Traffic Signal/road improvements
Cannon Road West	Cannon Road from Legoland Drive to El Camino Real	Street Improvements
Cannon Road Widening	1-5 to Paseo Del Norte (City of Carlsbad)	Street Improvements
Carlsbad Blvd Widening	Cannon to Manzano (City of Carlsbad)	Street Improvements
El Camino Real and Faraday Avenue	El Camino Real and Faraday Avenue (City of Carlsbad)	Street Improvements
Faraday Avenue Extension	Faraday Avenue east of Orion Street(City of Carlsbad)	Street Improvements
Faraday Avenue Mitigations	Uphill side of Faraday Avenue between Cannon Road and Camino Hills Drive (City of Carlsbad)	Habitat Restoration
El Camino Real to Faraday Orion Street Project	Orion St from El Camino Real to Faraday	Widening/reconstruction of Orion St
El Camino Real Watermain Replacement	Along El Camino from Cougar Drive to Faraday Ave (City of Carlsbad)	Upsize existing 20" to 30" watermain, including Maerkle Control Valve, to reduce pressure loss during emergency supply
College Blvd Watermain	College Blvd from Carlsbad Village Drive south to Cannon Road	6,330' Watermain to increase supply capacity; PRS
College Blvd Watermain	College Blvd from future intersection with Cannon South to future Tee leading to Maerkle Reservoir (City of Carlsbad)	New 4000' Watermain to increase supply capacity
College Blvd Watermain	College Blvd from Cannon Road south to Badger Lane (City of Carlsbad)	New 4,130' Watermain to supply new development.
Cannon Road Watermain	In Cannon Road, from Merwin Dr. east to intersection with future College Blvd (City of Carlsbad)	New 4,400' Watermain to supply new development.
College Avenue Watermain	College Avenue from Badger Lane north 1200 ft, then east through future development (City of Carlsbad)	New 5,200' Watermain to increase supply capacity and provide a redundant supply pipeline.

**TABLE 5-1
CUMULATIVE PROJECTS**

Project Name	Location (Lead Agency)	Description
Maerkle Reservoir Watermain	Northeast of Badger Lane to Maerkle Reservoir (City of Carlsbad)	New 4100' Watermain to supply to new 490 development east of EL Camino and Rancho Carlsbad Golf Course
Melrose Drive Watermain (12)	Future extension of Melrose Drive from Palomar Airport Road to Faraday (City of Carlsbad)	New 4000' Watermain
El Fuerte Watermain	North of El Fuerte St extension to future Faraday Rd (City of Carlsbad)	New 2200' Watermain
Faraday Watermain	Future Faraday Road extension between El Fuerte and Melrose Drive (City of Carlsbad)	New 3600' Watermain
El Fuerte Watermain	El Fuerte Street from Palomar Airport Road south to Rancho Poncho (City of Carlsbad)	New 5200' Watermain
Cannon Road Watermain	Along Cannon Road, 1800 feet northeast from Faraday (City of Carlsbad)	New 2760' Watermain to provide 375 supply from Maerkle Reservoir.
Water Reservoir	Adjacent to Maerkle Reservoir (City of Carlsbad)	Construct 15 MG capacity buried storage reservoir next to existing Maerkle Reservoir.
Enlarge Maerkle Pump Station	Maerkle Pump Station (City of Carlsbad)	Improvements at Maerkle Pump Station to increase capacity by 10,000 gpm.
Cannon/ College PRS	Cannon Road and College Blvd intersection	Install 490 →392 Pressure Reducing Station
Gateshead Lift Station	Gateshead Road north of the Robertson Ranch development and south of Tamarack Ave (City of Carlsbad)	Remove Gateshead Sewer Lift Station. 200 feet of 8- inch lines to be installed adjacent to lift station to connect to residential development projects.
Woodstock Lift Station	Woodstock Street, south of Tamarack Avenue adjacent to the Calavera Hills development project (City of Carlsbad)	Remove Woodstock Lift Station. 400 feet of 8- inch lines to be installed adjacent to lift station to connect to residential development projects.
Faraday #14 (Upper) Lift Station	Along Faraday Ave just west of College Blvd (City of Carlsbad)	Remove Faraday #14 Lift Station and connect to existing gravity sewer.
Faraday #10 (Lower) Lift Station	Along Faraday Ave south of Kelly Ranch (City of Carlsbad)	Remove Faraday #10 Lift Station and connect to existing gravity sewer.
Vista/ Carlsbad Interceptor Sewer Reach 11B	Cross over (in a bridge structure) Agua Hedionda Lagoon in existing NCTD right- of- way (City of Carlsbad)	Replace existing Reach 11B and bridge with 915 feet of 54- inch pipeline and new concrete bridge.
Agua Hedionda Lift Station	South of the Agua Hedionda Lagoon adjacent the Cabrillo Power Plant (City of Carlsbad)	Upgrade and slightly relocate lift station within existing property. Project includes five new pumping units of a firm pumping capacity of 36 mgd, and a new headworks, wet well, control building, 2.5 MG emergency storage basin, and 200 feet of 36- inch diameter forcemain.
Lower Vista/ Carlsbad Interceptor	Parallel to railroad tracks from the Agua Hedionda Lagoon south to Encina WPCF	Interceptor replacement; 9,890 feet of 54- inch pipeline.
South Agua Hedionda/ Kelly Ranch Lift Station	Along Cannon Road within Kelly Ranch (City of Carlsbad)	Temporary lift station to be replaced with permanent South Agua Hedionda Lift Station and new 5,380 feet of 14- inch foremain
Encina WPCF Cogeneration Project	6200 Avenida Encinas – Carlsbad (Encina Wastewater Authority)	Upgrade and program electrical generators which power the blowers within the sewer treatment facility.
Encina WPCF Flow Equalization Project	6200 Avenida Encinas – Carlsbad (Encina Wastewater Authority)	Construction of a reservoir/ tank to retain flows which exceed the capacity of the ocean outfall line. The retention facility may double as a recycled water reservoir.
Encina WPCF Phase V Expansion	6200 Avenida Encinas – Carlsbad (Encina Wastewater Authority)	Increase present capacity of 36 mgd (liquid) and 38 mgd (solids) to 40.5 mgd (liquid) and 43.3 mgd (solids), respectively. Also includes minor modifications to the

**TABLE 5-1
CUMULATIVE PROJECTS**

Project Name	Location (Lead Agency)	Description
		existing preliminary treatment facilities, secondary treatment facilities, effluent pumping facilities and odor control as well as a new biosolids handling and disposal facility and modifications/ improvements to the existing onsite cogeneration system.
Encina WPCF Phase V Expansion – Interim Capacity	6200 Avenida Encinas – Carlsbad (Encina Wastewater Authority)	Construction of necessary interim improvements including primary enhancement facilities and fourth aeration basin facilities to meet Growth Management Standards.
Dana Point Desalination Facility	San Juan Creek – South Coast Water District Land (Municipal Water District of Orange County)	Desalination facility to process salt water to produce 27 mgd of potable water.
Long Beach Desalination Facility	TBD (City of Long Beach)	Two- stage nanofiltration or single stage desalination facility to process salt water to produce 10 mgd of potable water.
Huntington Beach Desalination Facility	21652 Newland Street - Huntington Beach (City of Huntington Beach)	Desalination facility to process 100 mgd of salt water to produce 50 mgd of potable water
West Basin Desalination Facility	El Segundo and Redondo Beach Power Plant Site or Adjacent Refinery Site (West Basin Water District)	Desalination facility to process salt water to produce 20 mgd of potable water.
Playa del Rey Desalination Facility	12700 Vista Del - Scattergood Power Generation Station (Los Angeles Department of Water and Power)	Desalination facility to process salt water to produce 12 mgd of potable water.
San Onofre Desalination Facility	5000 Pacific Coast Highway, San Clemente - San Onofre Nuclear Power Generation Station (San Diego County Water Authority and Municipal Water District of Orange County)	Desalination facility to process salt water to produce 25 mgd of potable water.
South Bay Desalination Facility	Adjacent to the South Bay Power Plant in Chula Vista (San Diego Unified Port District)	Desalination facility to process salt water to produce potable water.

Sources:

SANDAG. Comprehensive Land Use Plan McClellan-Palomar Airport. April 1994. Figure 2. Pg 6.

http://www.nctimes.com/articles/2004/01/22/opinion/commentary/1_21_0421_24_07.txt. Accessed: June 23, 2004.

http://www.ci.vista.ca.us/gov/redev/vistavillage/phase_ii.htm. Accessed: June 23, 2004.

Vista, City of. October 2004. John Conley Personal communication.

Oceanside, City of. June 2004. Notice of Preparation for Melrose Drive Extension Project. Prepared by Jerry Hittleman, Senior Environmental Planner.

Oceanside, City of. June 2004. Draft Environmental Impact Report for New Venture Church.

Vista, City of. June 2004. Environmental Impact Report for North Coast Church. Prepared by LSA Associates, Inc.

Carlsbad, City of. November 1995. Final Program Environmental Impact Report for the Carlsbad Ranch Specific Plan Amendment. Prepared by Cotton/ Beland/ Associates, Inc.

Carlsbad, City of. January 2000. Revised Draft Environmental Impact Report for the Carlsbad Municipal Golf Course. Prepared by Cotton/ Beland/ Associates, Inc.

Carlsbad, City of. April 2002. Draft Environmental Impact Report for the Carlsbad Oaks North Specific Plan. Prepared by Cotton/ Beland/ Associates, Inc.

Encina Wastewater Authority. April 2004. Mitigated Negative Declaration for Encina Water Pollution Control Facility- Phase V Expansion. Prepared by Dudek & Associates, Inc.

5.3 ANALYSIS OF CUMULATIVE IMPACTS

Analysis of cumulative impacts requires estimation in many cases, because specific quantification of impacts is not always possible, due to variations in the status and timing of projects and environmental conditions that may exist when cumulative projects are developed. CEQA notes that the discussion of cumulative impacts should be guided by standards of practicality and reasonableness (CEQA Guidelines, 15130 (b)). As such, this analysis addresses impacts that might compound or interrelate with those of the proposed project.

Aesthetics

The cumulative aesthetics analysis considered the area surrounding the proposed desalination plant (together with the offsite facilities), specifically, the projects listed in Table 5-1. Cumulative projects within the following viewsheds are considered to contribute to potential impacts in conjunction with the project: Carlsbad Boulevard and the railroad corridor, both of which are included in the City of Carlsbad's Scenic Corridor Guidelines. Passenger rail traffic on the AT&SF/North County Transit District (NCTD) line to the east has partially screened views of the project site. The section of Carlsbad Boulevard adjacent to the EPS is designated a "Community Theme Corridor" due to its visual access to beaches, the ocean, and the lagoon.

The desalination plant is located entirely within the Encina Power Station (EPS) area. Planned or recently constructed projects located along Carlsbad Boulevard, the outer lagoon, or in the railway corridor are not expected to create adverse significant impacts to the visual quality of the area because of City development design requirements. Further, the proposed project is visually separated from cumulative projects by its location within the EPS facility, which places it a considerable distance from other uses. Mitigation measures related to building design and shielding at the project level will mitigate any significant visual effects of the project and would avoid cumulative impacts that may be associated with other projects within the identified viewsheds.

Because the proposed pipelines are planned to be located underground, this portion of the project will not cause long-term aesthetic impacts and would not contribute to any significant cumulative visual effects. In addition, the proposed pump station, similar in height and size to a one-story, single-family home of approximately 2,000 square feet, would not have a significant visual impact.

Air Quality

The cumulative impacts analysis for air quality considered potential cumulative impacts to the San Diego air basin. Short-term cumulative air quality impacts could result as project

construction proceeds within areas and within timeframes of other cumulative project construction. As discussed in Section 4.2, the project's contribution to temporary regional air quality impacts is not considered to be significant. In addition, because project construction occupies a relatively small area at any given time, and will move along the pipeline corridor fairly rapidly in comparison to fixed location cumulative construction projects, it is not anticipated that any significant localized cumulative impacts will result. This is primarily due to the short-term nature of cumulative effects within any given location along the project construction route.

Because of their long-term nature, any emissions from operations for pollutants for which the San Diego air basin is not in attainment with state and federal standards are considered to be cumulatively significant. The San Diego air basin is currently non-attainment for PM10 and ozone and NOx and ROC are ozone precursors. Long-term operational emissions will largely be caused indirectly, through the desalination plant's use of electrical energy, the generation of which causes emissions of pollutants. Given that the electricity the desalination plant uses could come from a variety of sources (including, for example, geothermal or nuclear plants that emit little or no pollutants) and could ultimately be generated outside of the San Diego air basin, it is very difficult to quantify what contribution to a cumulative impact the project will have. However, it is likely that at least part of the mix of electricity that the desalination plant uses will come from pollutant-emitting sources located in the San Diego air basin. As such, the project will contribute to a significant cumulative impact to air quality regarding PM10 and ozone (for which the San Diego air basin is non-attainment) and NOx and ROC (ozone precursors). There are no feasible mitigation measures that could be applied to the project that would reduce this cumulative impact to below a level of significance.

Biological Resources

Terrestrial Biological Resources

The cumulative impacts analysis for terrestrial biological resources considered potential cumulative impacts within the City of Carlsbad's Habitat Management Plan and the Oceanside Subarea Plan. As outlined in *Section 4.3, Biological Resources*, the Cities of Carlsbad, Oceanside and Vista are all participants in North San Diego Multiple Habitat Conservation Program (MHCP) a Natural Communities Conservation Plan (NCCP) pursuant to the state of California Natural Community Conservation Planning Act and a Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(b) of the Federal Endangered Species Act. The MHCP considers biological resource conservation on a sub-regional scale and therefore serves as an appropriate measure of cumulative impacts. The City of Carlsbad's Habitat Management Plan (HMP) and the Oceanside Subarea Plan serve as the local implementation plans for the sub-regional MHCP. As such, the HMP and Subarea Plan provide mitigation programs to address the effects of

cumulative development. If a project is determined to be consistent with the HMP and Subarea Plan, and/or provides appropriate mitigation to ensure the integrity of the plans, its cumulative effects would not be considered significant. As noted in *Section 4.3, Biological Resources*, the project is consistent with both the HMP and Subarea Plan, and therefore no significant cumulative impacts to biological resources would result from project implementation.

Marine Biological Resources

The cumulative impacts analysis for marine biological resources considered potential cumulative impacts to the shoreline and offshore area that could be influenced by the proposed desalination plant. Cumulative projects considered in the analysis of cumulative effects related to marine biology include other planned seawater desalination operations as identified above. As discussed in detail in *Section 4.3, Biological Resources*, the proposed project design and operating parameters would not result in significant impacts to marine organisms. In support of this finding are studies pertaining to impingement and entrainment, modeling and prediction of elevated salinity levels, and effects of elevated salinities on marine organisms. Specific analyses for each of the cumulative projects considered may yield different results, depending on the proposed operational characteristics of each desalination plant and the resources found locally. However, it is reasonable to conclude that the absence of localized impacts to populations of species that occur throughout the cumulative projects study area resulting from the proposed project would indicate that the project's contributions to cumulative effects on marine organisms would be less than significant.

Cultural Resources

The cumulative impacts analysis for cultural resources considered the area surrounding the proposed desalination plant and offsite facilities, specifically, the projects listed in Table 5-1. Impacts to cultural resources related to cumulative development that occurs within the areas surrounding the desalination plant and associated offsite facilities could be significant if significant cultural resources are destroyed as a result of development. Section 4.4 provides a comprehensive summary of all potential cumulative impacts to cultural resources, as a result of the records search, literature review, and field survey conducted for the proposed project. The mitigation measures required for this project and the mitigation required by the City as a standard of CEQA review provides for avoidance, documentation and/or recovery of significant cultural resources, and as a result, all impacts related to cultural resources are reduced to less than significant levels.

Geology and Soils

The cumulative impacts analysis for geology and soils considered the area surrounding the proposed desalination plant (together with the offsite facilities), specifically, the projects listed in *Table 5-1*. Construction of projects such as the desalination facility and pipelines across faults, within liquefaction zones, within tsunami susceptible regions or within subsidence hazard areas would not result in an exacerbation of these geotechnical hazards. Tectonic movement, which is independent of human influence, solely affects these conditions. Therefore from a cumulative project impact perspective, these hazards are not relevant. However, erosion hazards and landslides are cumulatively considerable as the rate of building or other human induced use of the land can lead to unstable conditions that may result in instability of the earth.

The desalination plant site and offsite facilities will require relatively minor site preparation and excavation of soils. Project mitigation to control and address erosion and seismic and soils hazards, in conjunction with similar standard measures required of cumulative projects, would reduce cumulative impacts to less than significant levels.

Hazards and Hazardous Materials

The cumulative impacts analysis for hazards and hazardous materials considered the area surrounding the proposed desalination plant (together with the offsite facilities), specifically, the projects listed in *Table 5-1*. The project would not contribute to cumulative considerable increases in hazards or hazardous materials, and in fact would contribute to cleanup of potential contamination on the project site.

Hydrology and Water Quality

The cumulative impacts analysis for hydrology and water quality considered the area that could be impacted by the proposed desalination plant, specifically, the water shed for the desalination plant and offsite improvements and the portion of the ocean that could be affected by discharges. As noted under biological resources, water quality impacts associated with desalination plant discharge would not be cumulatively significant. Other water quality and hydrology issues associated with the plant would be temporary (construction-related) in nature and would not contribute to cumulatively significant impacts.

Land Use and Planning

The cumulative impacts analysis for land use and planning considered the area surrounding the proposed desalination plant (together with the offsite facilities), specifically, the projects listed in *Table 5-1*. Cumulative impacts to land use would be defined as impacts that result from

incremental changes in land use that would result in substantial disruption within an established community or conflicts with adopted plans and policies related to avoidance or mitigation of environmental effects. The desalination plant is a utility use proposed entirely within the boundaries of an existing utility site. The offsite facilities that would convey desalinated water from the plant and into the surrounding communities would be primarily located within existing street rights of way and installed underground. As such, the project would not contribute to significant impacts resulting from cumulative development that may have the effect of dividing an established community or conflicting with environmental policies. In addition, consideration of effects on land use is given to each of the cumulative projects as they are considered for approval. As such, significant impacts are mitigated at the project level, and while land use change will occur as cumulative projects develop, significant cumulative environmental effects resulting from those changes are avoided through project-specific mitigation.

Noise and Vibration

The cumulative impacts analysis for noise and vibration considered the area surrounding the proposed desalination plant and related offsite facilities, specifically, the projects listed in Table 5-1. The primary noise impacts associated with the proposed project are related to construction noise. In general, noise impacts associated with the majority of cumulative projects are long-term effects related to traffic generated by development. These cumulative impacts generally increase over time, as buildout of the community nears completion. The project will contribute to short-term cumulative noise impacts. However, within the time frame of project construction, it is not anticipated that those cumulative effects would reach a level of significance. This is primarily due to the fact that individual projects with long-term noise impacts are required to implement long-term noise mitigation. So it is anticipated that as cumulative projects develop, mitigation to address noise impacts will be employed to protect sensitive receptors. Also, the time frame for construction of the proposed project is relatively short, and it is therefore not anticipated that ambient noise levels will increase substantially beyond current levels before completion of project construction. Therefore, it is not anticipated that the project in conjunction with cumulative projects would result in significant noise impacts.

Traffic and Circulation

The cumulative impacts analysis for traffic and circulation considered the intersections and road segments to which the proposed desalination plant could contribute to a cumulative impact. Similar to noise impacts, project traffic impacts are primarily associated with construction. Since the time frame for construction is relatively short, it is not anticipated that a substantial increase in current traffic levels resulting from cumulative development will occur prior to completion of project construction. Therefore, temporary traffic impacts associated with the project will cease prior to any substantial cumulative traffic impacts being realized on local

roadways. With mitigation, impacts related to project construction alone are considered to be less than significant (*Section 4.10*). Therefore, the project is not anticipated to contribute to any significant cumulative traffic impacts.

Public Utilities and Service Systems

The cumulative impacts analysis for energy considered potential statewide cumulative impacts. As noted in *Section 4.11, Public Services and Utilities*, the proposed project would not result in the need for additional public facilities or services and would not contribute to considerable increases in demand for public services. Additionally, the project would not result in increased energy demand that would necessitate additional electrical generating or transmission facilities. This conclusion is primarily based on capacity and reliability features built into the electrical transmission grid. Also noted is that fact that imported water also has an energy demand component, and as such, replacement of imported water supplies with desalination water supplies in general would have a relatively small net effect on energy consumption. Additional cumulative projects would also increase energy demand. However, the cumulative projects listed are generally consistent with land use planning assumptions for the proposed project locations in terms of energy consumption. As such, it is not anticipated that implementation of the cumulative projects would result in energy demand that would require additional energy-related facilities beyond those planned to serve proposed development.

The cumulative impacts analysis for wastewater considered potential cumulative impacts to the Encina Wastewater Authority service area. Also as noted in *Section 4.11*, the proposed project would not result in increased wastewater production that would necessitate additional wastewater treatment capacity. Additional cumulative projects would also increase wastewater treatment demand. However, the cumulative projects listed are generally consistent with land use planning assumptions included in EWA's planning assumptions. This conclusion is based on the Encina Wastewater Authority (EWA) Phase V expansion plans. As such, it is not anticipated that implementation of the cumulative projects would result in wastewater treatment demand that would require additional wastewater facilities beyond those planned to serve proposed development.