4.10 TRANSPORTATION AND TRAFFIC

4.10.1 Introduction and Methodology

This chapter documents the existing transportation infrastructure in the project area and evaluates the potential effects of the proposed Project and alternatives on infrastructure and traffic. Potential impacts are primarily related to construction activities for the desalination plant and offsite pipelines and facilities. Existing condition information was gathered from the cities of Carlsbad, Vista and Oceanside General Plans, relevant roadway data sheets and communication with city staff.

4.10.2 Existing Conditions

Roadways

Several principal roadways would be either disturbed during pipeline or desalination facility construction or would support traffic moving to and from the facility during construction and operation. *Figure 4.10-1, Affected Roadway Existing Conditions*, depicts the existing Average Daily Trips (ADT) for roadways that will experience the greatest level of impact from project construction and operation, primarily those roadways that will be used as routes to and from construction areas.

Rail Facilities

The North San Diego County Transit District (NCTD) provides transportation service from Coastal North County to San Diego. A portion of the railway bisects the Encina Power Station (EPS) north to south just east of the proposed desalination facility. The Coaster, which is owned by NCTD, is a commuter passenger train that operates six days a week, excluding Sundays. Mondays through Thursdays the Coaster operates from 5:23AM until 11:43PM with a total of 24 trains per day. On Fridays the Coaster is active from 5:23AM to 1:09AM with a total of 26 trains per day. There are a total of eight trains on Saturdays that begin service at 9:14AM and end at 10:03PM. Proposed pipeline alignments would cross under the NCTD railway to exit the EPS.

The "Sprinter" rail line, a 22 mile passenger line between Oceanside to Escondido, is currently in the planning process. This commuter passenger train is intended to operate seven days a week with week day service from 5:00AM to 9:00PM. With 64 daily trips, the Sprinter is projected to run every thirty minutes in each direction. (http://www.gonctd.com/oerail/oerail.html, Accessed June 28, 2004). In the City of Oceanside near Oceanside Boulevard, the Melrose Drive and

Figure 4.10-1

College Boulevard pipeline options would cross under the existing NCTD railway that is the route for this planned rail line.

Airport Facilities

The proposed Carlsbad Seawater Desalination Plant is located approximately 2.5 miles west of the McClellan Palomar Airport. For 2003, the annual operations count for the publicly owned airport averaged at 193,336 (each takeoff and landing is counted as one operation). The Comprehensive Land Use Plan McClellan-Palomar Airport (SANDAG, 1994) identifies areas likely to be impacted by noise and flight activity created by aircraft operations at the airport. The three areas of significant risk identified in the Land Use Plan include: the Airport Influence Area; the Runway Protection Zone; and the Flight Activity Zone. Portions of the offsite pipeline areas are located within the McClellan-Palomar Airport's Airport Influence Area, Runway Protection Zone, and Flight Activity Zone.

Growth Management Standards

The City of Carlsbad's Growth Management Program establishes performance standard for various public services and facilities, including roadway circulation. The Growth Management circulation performance standard states: No road segment or intersection in the zone nor any road segment or intersection out of the zone which is impacted by development in the zone shall be projected to exceed a service level C during off-peak hours nor service level D during peak hours. Impacted means where 20% or more of the traffic generated by the local facility management zone will use the road segment or intersection.

4.10.3 Significance Criteria

The following significance criteria are derived from the relevant criteria contained in Appendix G of the CEQA Guidelines. Impacts are considered to be significant if the project would:

- Cause in increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.
- Exceed an applicable adopted level of service standard.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature or incompatible uses
- Result in inadequate emergency access.

4.10.4 Impacts

Construction Traffic (Short-term/temporary)

Construction traffic impacts are associated with either preparation of the site/construction of the plant, and offsite pipeline construction. Each phase of construction is described and analyzed below.

Desalination Facility Construction

Construction of the desalination facility will be completed in stages. These stages include demolition of the fuel oil tank, which currently occupies the project site, and any necessary site remediation. Subsequent stages include construction of the desalination plant, intake pump station, and intake and discharge pipelines. *Table 4.10-1, Desalination Facility Construction Trips Summary* provides a summary of all plant construction stages, total truck trips anticipated, affected roadways and the impact on each roadway's ADT load. The ADT figures presented in *Table 4.10-1* are not added for a total of all stages because some construction stages would be staggered, and therefore not occur simultaneously. However, to estimate maximum construction traffic impacts, it is assumed that stages involving desalination plant construction, intake pump station construction, and intake and discharge pipeline construction would occur simultaneously. These construction activities are grouped in stages 2 and 3 in the *Table 4.10-1*. Primary construction access will be from the generating station's main entrance on Carlsbad Boulevard, south to Cannon Road and I-5. As noted on *Figure 4.10-1*, ADT vary from segment to segment on the roadways that are potentially affected by construction traffic. Therefore, for purposes of this analysis, and to reflect the "worst case" impacts, the lowest existing ADT figures are used to express project impact percentages. In other words, it is assumed that the greatest increase in traffic would result on those segments of road that currently carry the lowest volumes. So the lowest volume figures are used to represent the worst possible impact on affected roads.

The most traffic intensive phase of construction for the facility, represented by the simultaneous construction of improvements identified in stages 2 and 3 of *Table 4.10-1*, could result in the addition of a maximum of 78 trips per day on Carlsbad Boulevard, Cannon Road, Interstate 5, Faraday Avenue, El Camino Real and Palomar Airport Road. Considering the lowest current ADT volumes for any given segment of these roadways, and thus the maximum increase that can be expected would be on the segment of Faraday Avenue from Cannon Road to Camino Hills Drive, resulting in an increase from the current 7,513 ADT to 7,591 ADT. This would represent an increase of approximately 1%, which would not be considered a substantial increase. In addition, the increase is not anticipated to result in Level of Service on these roadways falling below acceptable levels. Therefore, traffic impacts associated with construction of the desalination plant are not considered to be significant.

TABLE 4.10-1
Desalination Facility Construction Trips Summary

Activity	Total Activity Length (days)	Round-Trip Truck Trips	Maximum Number of Total Trips per Day (ADT)	Affected Roadways	ADT without Project	ADT with Project
Stage 1: Fuel Oil Tank Demolition and Berm Excavation						
Demolition of Fuel Oil Storage Tank (including hauling 8,300 cubic yards to airport disposal site)	137	1,190	9	Carlsbad Boulevard Cannon Road I-5 Faraday Avenue El Camino Real Palomar Airport Rd	22,600 9,341 364,800 7,513 35,738 54,419	22,609 9,350 364,809 7,522 35,747 54,428
Site remediation, if necessary (1,800 cubic yards)	60	260	4	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,604 9,345 364,802
SUBTOTAL	--	1,450	13	Carlsbad Boulevard Cannon Road I-5 Faraday Avenue El Camino Real Palomar Airport Rd	22,600 9,341 364,800 7,513 35,738 54,419	22,613 9,354 364,813 7,526 35,751 54,432
Stage 2: Desalination Plant and Intake Pump Station Construction						
Initial Site Grading/Excavation (41,400 cubic yards for both plant and pump station grading, including hauling to airport disposal site)	152	5,920	39	Carlsbad Boulevard Cannon Road I-5 Faraday Avenue El Camino Real Palomar Airport Rd	22,600 9,341 364,800 7,513 35,738 54,419	22,639 9,380 364,839 7,552 35,777 54,458
Desalination Plant Construction - Structures	456	3,580	8	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,608 9,349 364,808
Desalination Plant Paving and Landscaping	122	500	4	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,604 9,345 364,804
Intake Pump Station - Structures	273	1,600	6	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,606 9,347 364,806
Intake Pump Station - Paving	30	300	10	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,610 9,351 364,810
SUBTOTAL	--	11,900	67	Carlsbad Boulevard Cannon Road I-5 Faraday Avenue El Camino Real Palomar Airport Rd	22,600 9,341 364,800 7,513 35,738 54,419	22,667 9,408 364,867 7,580 35,805 54,486

TABLE 4.10-1
Desalination Facility Construction Trips Summary

Activity	Total Activity Length (days)	Round-Trip Truck Trips	Maximum Number of Total Trips per Day (ADT)	Affected Roadways	ADT without Project	ADT with Project
Stage 3: Intake and Discharge Pipeline Construction						
Excavation/Earthwork (10,440 cubic yards - including hauling to airport disposal site)	182	1,300	7	Carlsbad Boulevard Cannon Road I-5 Faraday Avenue El Camino Real Palomar Airport Rd	22,600 9,341 364,800 7,513 35,738 54,419	22,607 9,348 364,807 7,520 35,745 54.426
Installation of Pipe	182	160	1	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,601 9,342 364,801
Installation of Pavement	15	50	3	Carlsbad Boulevard Cannon Road I-5	22,600 9,341 364,800	22,603 9,344 364,803
SUBTOTAL	-	1,510	11	Carlsbad Boulevard Cannon Road I-5 Faraday Avenue El Camino Real Palomar Airport Rd	22,600 9,341 364,800 7,513 35,738 54,419	22,611 9,352 364,811 7,524 35,749 54,430

Note: ADT data sources are provided in Figure 4.10-1

All construction activities for the desalination plant will take place within the Encina Power Plant site, and therefore no lane closures or safety hazards on public roads would result from plant construction. Impacts related to road hazards and emergency access would be less than significant.

Pipeline/Associated Facility Construction

The project would involve installation of approximately 91,800 linear feet of 24 to 48 inch pipeline. Portions of the alignment would be constructed in non-paved (non-roadway) areas or would be implemented using open trench or trenchless construction techniques that would not disturb existing roadways. A total of approximately 74,000 linear feet of the pipeline would be located within existing paved roadways. Construction will take slightly longer in existing roadways than in non-paved areas, due to existing infrastructure, timing constraints and traffic considerations.

It is anticipated that multiple construction crews will be working on pipeline construction simultaneously. Based on the applicant's proposed schedule for construction, it is assumed that a total of nine contractors (one 22.5 person crew per contract) would be working on the project which would result in a construction timeframe of approximately 445 working days (608 calendar days).

In addition to hauling earthwork, truck trips during pipeline construction will also result from delivering pipe, and delivering pavement. *Table 4.10-2, Pipeline Construction Trips Summary* provides a summary of all traffic associated with pipeline construction and anticipated impacts.

TABLE 4.10-2
Pipeline Construction Trips Summary

Activity	Total Activity Length (days)	Round Trip Truck Trips	Maximum Number of Round-trip Truck Trips per Day (ADT)
Earthwork (14 cubic yards per trip – approximately 596,400 cubic yards of material)	445 (work days)	85,200	191
Pipe Delivery	445 (work days)	2,400	5
Pavement	445 (work days)	8,800	20
TOTAL	**445 (work days)**	**96,400**	**216**

There will not be sufficient room within the roadway areas to leave any more than 10% of trench spoil piled along the trench. Therefore, the spoil soils will need to be removed from the road. Pavement will be discarded and soil will be stockpiled. It is assumed most of the stockpiled soil will be used for backfill. All unused spoil soils will need to be hauled from the construction site for ultimate disposal. The actual disposal locations will depend on the availability of receiving sites at the time of construction. Timing of pipeline construction relative to other construction projects that may be occurring in proximity to the pipelines will be a factor in disposal site selection. However, for purposes of this analysis, a single disposal site has been identified at the McClellan-Palomar Airport , which is available and has the capacity to accept the spoil materials. The dirt would be used as fill on the north and/or the south sides of the runway to create level areas for an airplane transit and parking. More specifically, the north fill area is located on the north side of the runway bound by the native habitat on the northwestern edge and the old landfill site at the easternmost part of the airport. The south fill area is located south of the runway, north of the existing aircraft parking area and is bound on the east and west by aircraft transit corridors. Estimation of impacts based on this site as the sole disposal site is considered to be a worst-case analysis, because it is anticipated that sites that are more proximal

to the construction areas will be available, and therefore trip lengths would be reduced and traffic impacts would be less than what is assumed in this analysis.

The average round trip distance from the construction areas to the airport is approximately 9.2 miles. For this location, the majority of the soil hauling will be along major arterial roads, such as College Boulevard, Melrose Avenue and Palomar Airport Road. Local impacts to smaller roadways will be limited in duration, due to the length of pipeline segments within these areas. The primary hauling activity within these areas will be to remove the soils from the immediate area. For example, where some of the alternative alignments are proposed in residential streets and collector roads, construction in any given location will be completed within a matter of several days. These roadways would not be used for hauling of cumulative quantities of soil from multiple trench locations, such as are represented in *Table 4.10-3*. The following illustrates the anticipated hauls routes for four scenarios that correspond to potential alignment segment combinations, based on the alternative pipeline routes identified:

Scenario 1: All pipeline areas west of El Camino Real: Cannon Road (east)→ Faraday Avenue (east) → El Camino (south) → east airport entrance (on El Camino Real) →**return via Palomar Airport Road to College Avenue**

Scenario 2: All pipeline areas east of El Camino Real and west of Melrose Drive (including pipelines within Melrose Drive south to Palomar Airport Road): Melrose Drive (south) → Faraday Avenue (west) → El Camino Real (south) → east airport entrance (on El Camino Real) →**return via Palomar Airport Road to College Avenue**

Scenario 3: Tri-Agencies Pipeline Easement, Shadowridge and Mearkle Feed, Melrose north of Cannon Road: Melrose Drive (south) → Faraday Avenue (west) → El Camino Real (south) → east airport entrance (on El Camino Real) →**return via Palomar Airport Road to College Avenue**

Scenario 4: Pipeline areas along the College Boulevard alignment: College Boulevard (south) → Lake Boulevard (west) → El Camino Real (south) → east airport entrance (on El Camino Real) →**return via Palomar Airport Road to College Avenue**

Table 4.10-3 provides a summary of worst case impacts to roads that will experience haul route traffic. The worst case impact on ADT is determined by calculating the largest percentage of increase on any given roadway. Similar to the plant construction analysis, the worst case increase is measured against the segments of roadway with the lowest existing ADT figures,

which will result in the highest percentage of increase. Therefore, *Table 4.10-3* reports impacts based on the segment of each roadway with the lowest existing ADT levels.

TABLE 4.10-3
PIPELINE CONSTRUCTION TRIP SUMMARY IMPACTS

Roadway	Maximum Number of Round-trip Truck Trips per Day (ADT) (Worse Case Scenario)	ADT without Project	ADT with Project
Cannon Road	216	9,341	9,557 (2.3% increase)
College Boulevard	216	15,500	15,716 (1.4% increase)
Faraday Avenue	216	7,513	7,729 (2.9% increase)
Melrose Drive	216	15,500	15,716 (1.4% increase)
El Camino Real	216	35,738	35,954 (0.6% increase)
Lake Boulevard	216	12,000	12,216 (1.8% increase)
Palomar Airport Road	216	54,419	54,635 (0.4% increase)
Mesa Drive	216	8,900	9,116 (2.4% increase)

Note: ADT data sources are identified in *Table 4.10-1.*

As noted in *Table 4.10-3*, the maximum increase in ADT from traffic associated with pipeline construction would by 2.9%, which would be experienced on Faraday Avenue from Cannon Road to Camino Hills Drive, resulting in an increase from the current 7,513 ADT to 7,729 ADT. This increase is not considered to be substantial. Therefore, the increase in traffic associated with pipeline construction is not anticipated to result in Level of Service on any of the affected roadways falling below acceptable levels. Therefore, traffic impacts associated with pipeline construction activities are not considered to be significant. However, to ensure that localized impacts do not occur as a result of selection of additional disposal sites, the applicant will be required to demonstrate that construction operations will not result in unacceptable Levels of Service during peak hour periods on affected roadways (please refer to Mitigation Measure 4.10-1, *Section 4.10.6*).

In addition to additional traffic being added to roadways, project construction will also result in traffic impacts related to construction activity within the road rights-of-way. Construction within roadways will require temporary lane closures for trenching, construction staging and equipment maneuvering. These activities have the potential to result in significant impacts related to traffic congestion and traffic safety. Mitigation to reduce impacts to less than significant levels, consisting of traffic control measures is included in *Section 4.10.6*, below.

Operational Traffic (Long-term/permanent)

The Carlsbad Seawater Desalination Plant will operate 24 hours per day and 7 days per week. The normal operational truck traffic to and from the site will be related to transport of bulk supplies of water treatment chemicals, supply of equipment and spare parts, waste solids disposal and solids residuals disposal (these wastes consist of dewatered pretreatment waste solids that would be generated with implementation of the onsite waste treatment described in Section 3.4. The generating station's main entrance on Carlsbad Boulevard will serve as the access for all operational traffic.

Table 4.10-4, Operational Traffic Trips Summary, summarizes estimated operational traffic for the desalination facility. Each impact is described further below.

TABLE 4.10-4
Operational Traffic Trips Summary

Trip Purpose	Average Daily Trips	Affected Roadways	Existing ADT	ADT with Project
Water Treatment Chemical Bulk Supply Delivery	4	I-5 Cannon Road Carlsbad Boulevard	364,800 10,179 22,600	364,804 10,183 22,604
Equipment and Spare Part Delivery	1	I-5 Cannon Road Carlsbad Boulevard	364,800 10,179 22,600	364,801 10,180 22,601
Waste Solids Disposal	1	I-5 Cannon Road Carlsbad Boulevard	364,800 10,179 22,600	364,801 10,180 22,601
Solids Residuals Disposal	6	Cannon Road Carlsbad Boulevard	10,179 22,600	10,185 22,606
Employee/Visitor	108	I-5 Cannon Road Carlsbad Boulevard	364,800 10,179 22,600	364,908 10,287 22,708
TOTAL	**120**	**I-5 Cannon Road Carlsbad Boulevard**	**364,800 10,179 22,600**	**364,920 10,299 22,720**

Assuming the worst case scenario that all of these operational activities were to occur on the same day, combined with the estimated employee and visitor traffic, the total impacts would be approximately 120 trips per day on Interstate 5, Cannon Road and Carlsbad Boulevard. The worst case impact on the affected roadways would be in the projected increase on Cannon Road, as the segment of Cannon Road from the Plant site to the freeway currently carries the lowest ADT of the affected roadways. The projected increase in traffic on that segment of Cannon

Road would result in a 1.2% increase in additional trips. This is not considered to be a substantial increase in traffic, and therefore, the impacts are not considered to be significant. Inspection and monitoring of pipelines, pump stations and reservoir connection points will occur approximately twice a year. Maintenance and monitoring would be evenly distributed along roadways which allow pipeline and associated facility access. This would take from two to eight employee trips per six months. This would translate into a negligible number of average daily trips, and therefore would not be considered significant.

Rail Facilities

The proposed water delivery pipelines will need to cross the right-of-way for the NCTD rail line that runs just east of the desalination plant site. In the City of Oceanside, the Melrose Drive and College Boulevard pipeline options will need to cross the right of way for the NCTD rail line that runs along Oceanside Boulevard. The pipelines crossing the rail lines will be installed using trenchless construction methods, and therefore, no disruption in rail service is anticipated to result. The project applicant will be required to obtain any necessary encroachment permits from NCTD prior to construction.

Airport Facilities

One of the offsite water delivery pipeline options includes a segment along the northern boundary of Palomar Airport. The airport has also been identified as a disposal site for pipeline spoil soils. Both the pipeline and disposal sites are proposed in areas that are not within an active navigational area, and therefore, it is not anticipated that the project would result in any change in air traffic patterns or result in any safety risks, and therefore, impacts are not considered to be significant. It should be noted however, that the project applicant will be required to coordinate with the airport operator to ensure that existing airport operational activities are not adversely affected. This coordination is required under mitigation measure 4.8.5-1 in *Section 4.8, Land Use/Planning*.

Growth Management Standards

As noted above, it is not anticipated that additional traffic resulting from project construction would represent a substantial increase in daily traffic on affected roadways, and the increase is not anticipated to result in Level of Service on these roadways falling below acceptable levels, including the thresholds established in the City of Carlsbad Growth Management Standards (level C during off-peak hours nor service level D during peak hours). Therefore, it is not anticipated that the project would result in inconsistencies with the Growth Management

Standards related to traffic. However, to ensure that these standards are met, the applicant will be required to demonstrate that construction operations will not result in unacceptable Levels of Service during peak hour periods on affected roadways and intersections (please refer to Mitigation Measure 4.10-1, *Section 4.10.6*).

4.10.6 Mitigation Measures

4.10-1 Prior to issuance of grading permits and/or encroachment permits for work within public rights-of-way, the Applicant shall provide the ultimate location of soil disposal sites to the appropriate city (if they are different from the disposal site identified in this analysis), and shall further demonstrate that transport of soil and materials to and from the proposed sites will not result in Levels of Service during peak hour periods on affected roadways and intersections falling below acceptable standards established by the affected cities.

4.10-2 Prior to improvement plan approval, a traffic control plan will be prepared for approval by each jurisdiction within which the project is proposed to be located. The traffic control plan will show all signage, striping, delineate detours, flagging operations and any other devices which will be used during construction to guide motorists safely through the construction zone and allow for adequate access and circulation, to the satisfaction of the city or agency with applicable jurisdiction. The traffic control plan will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety. The construction contractors will coordinate traffic diversions, street and lane closures, and obstruction of intersections with each jurisdiction's engineering department prior to commencing construction activities through the development of routing and detour plans.

This Traffic Control Plan will be prepared in accordance with each jurisdiction's traffic control guidelines and will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the Plan will ensure that congestion and delay of traffic resulting from project construction are not substantially increased and will be of a short-term nature.

The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor shall provide not less

than a 2-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction.

During construction, the contractor will ensure that continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities such as schools, parks, post offices and fire stations. If normal access to these facilities is blocked by construction for more than four hours in any given workday, alternative access will be provided. The contractor will coordinate with each facility's administrators in preparing a plan for alternative access.

During construction, the contractor will ensure that continuous, unobstructed, safe and adequate pedestrian and vehicular access remains to commercial/ industrial establishments during regular business hours. If normal access to business establishments is blocked by construction for more than four hours in any given workday, alternative access will be provided. The contractor, and possibly the city, will coordinate with the businesses in preparing a plan for alternative access.

During construction, the city will maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. For example, when the pipeline is initially being excavated, access to individual driveways may be closed during the course of a workday. Access will be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure.

Methods to maintain safe, vehicular and pedestrian access includes the installation of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor will place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made.

The traffic control plan will include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies such as emergency service providers, mail delivery, school busses and waste services.

4.10.7 Level of Significance After Mitigation/Residual Impacts

After mitigation, all impacts would be reduced to a level below significant.