

## C.3 TRAFFIC AND CIRCULATION

### C.3.1 ENVIRONMENTAL BASELINE AND REGULATORY SETTING

#### C.3.1.1 Environmental Baseline

##### Overview

The existing environmental setting provides a description of existing traffic and circulation conditions in the project study area. The environmental setting for the Bolsa Chica Planned Community project was previously addressed in the *1996 Recirculated Draft Environmental Impact Report for Bolsa Chica Report Local Coastal Program*. While this previous environmental document addressed traffic impacts of the proposed Bolsa Chica Planned Community project on Bolsa Chica Mesa, this supplemental EIR is focused on potential traffic impacts related to the construction of the Proposed Project. The study area for this supplemental EIR is, therefore, focused on the specific corridors within which the proposed water transmission line may be routed. Figure B-2 depicts the route of the proposed water transmission line. This figure also illustrates the basic study area for the Proposed Project.

##### Roadway System Characteristics

This section describes physical features of the study area roadways as well as current traffic volumes in the project vicinity. Information presented in this section focuses on the proposed water transmission line route and route alternatives.

##### *Study Area Roadways*

The east-west limits of the study area generally extend from just east of Springdale Street to just east of Seal Beach Boulevard. North-south project limits are from Orangewood Avenue to Warner Avenue/Los Patos Avenue.

Principal north-south roadways in the study area include:

- Bolsa Chica Street/Bolsa Chica Road/Valley View Street
- Graham Street
- Springdale Street.

Principal east-west streets include:

- Chapman Avenue
- Lampson Avenue
- Garden Grove Boulevard
- Westminster Boulevard
- Bolsa Avenue
- McFadden Avenue
- Edinger Avenue
- Heil Avenue
- Warner Avenue.

In addition to the principal surface streets listed above, two regional freeways traverse the study area. These include Interstate 405 and State Route 22.

Several secondary and minor streets need to be identified in the documentation of existing conditions since they are involved in either the proposed water transmission line route or one of the route alternatives. These streets include:

- Old Bolsa Chica Road
- Rancho Road
- Green Street
- Los Patos Avenue.

### ***Roadway Traffic Lanes And Intersection Controls***

The number of existing traffic lanes on streets most directly affected by the proposed water transmission line routing or the route alternatives are illustrated in Figure C.3-1. Also shown on Figure C.3-1 are the current traffic control features at key intersections within the study area.

### ***Roadway Traffic Volumes***

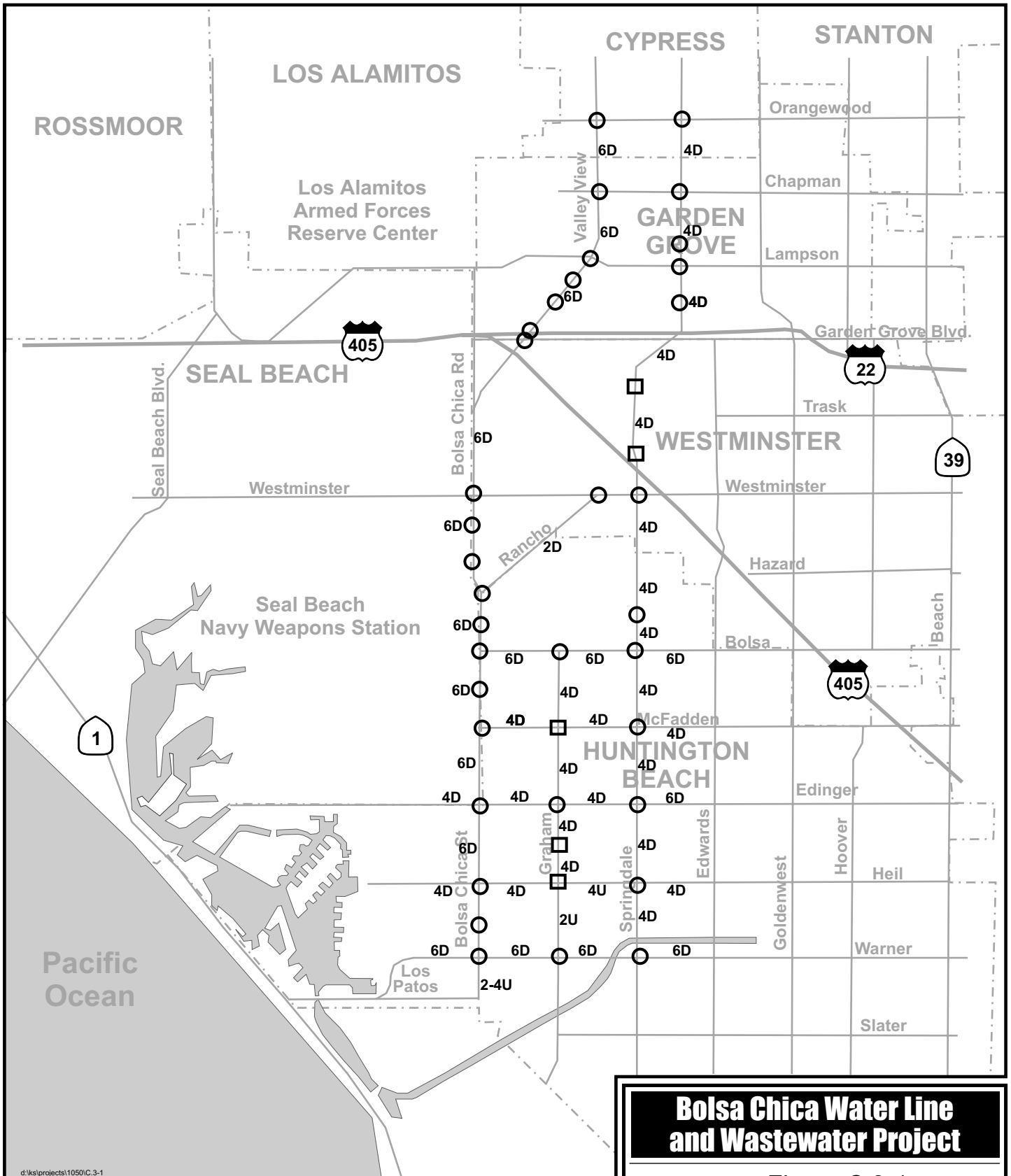
Current daily traffic volumes on study area roadways were obtained from each of the affected jurisdictions. Daily traffic volumes are depicted on Figure C.3-2.

Daily traffic volumes on Bolsa Chica Street/Bolsa Chica Road generally range from 23,000 vehicles per day just north of Warner Avenue to 49,000 vehicles per day immediately north of Bolsa Avenue. South of Warner Avenue, Bolsa Chica Street is estimated to carry less than 5,000 vehicles daily. Principal east-west streets, which intersect with Bolsa Chica Street/Bolsa Chica Road generally, carry daily volumes in the range of 12,000 to 16,000. McFadden Avenue and Rancho Road serve somewhat lower volumes (8,000 and 4,300 respectively). Warner Avenue serves the heaviest volumes, which range from 25,000 west of Bolsa Chica Street to 35,000 east of Bolsa Chica Street.

Traffic volumes along Springdale Street, which constitutes an alternative route, range from 6,200 vehicles per day south of Orangewood Avenue to 26,000 vehicles per day just north of Bolsa Avenue.

### ***Roadway Traffic Conditions***

Study area traffic conditions have been reviewed to identify roadway segments and intersections which are currently experiencing congestion. For the purpose of this analysis, congested conditions are assumed to be present during peak traffic periods once Level of Service (LOS) D is reached. Level of Service is a measure of roadway congestion, ranging from A (free-flowing) to F (highly congested).



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**Legend**

- Signal
- All Way Stop
- 2 Total Lanes (Both Directions)
- U Undivided
- D Divided



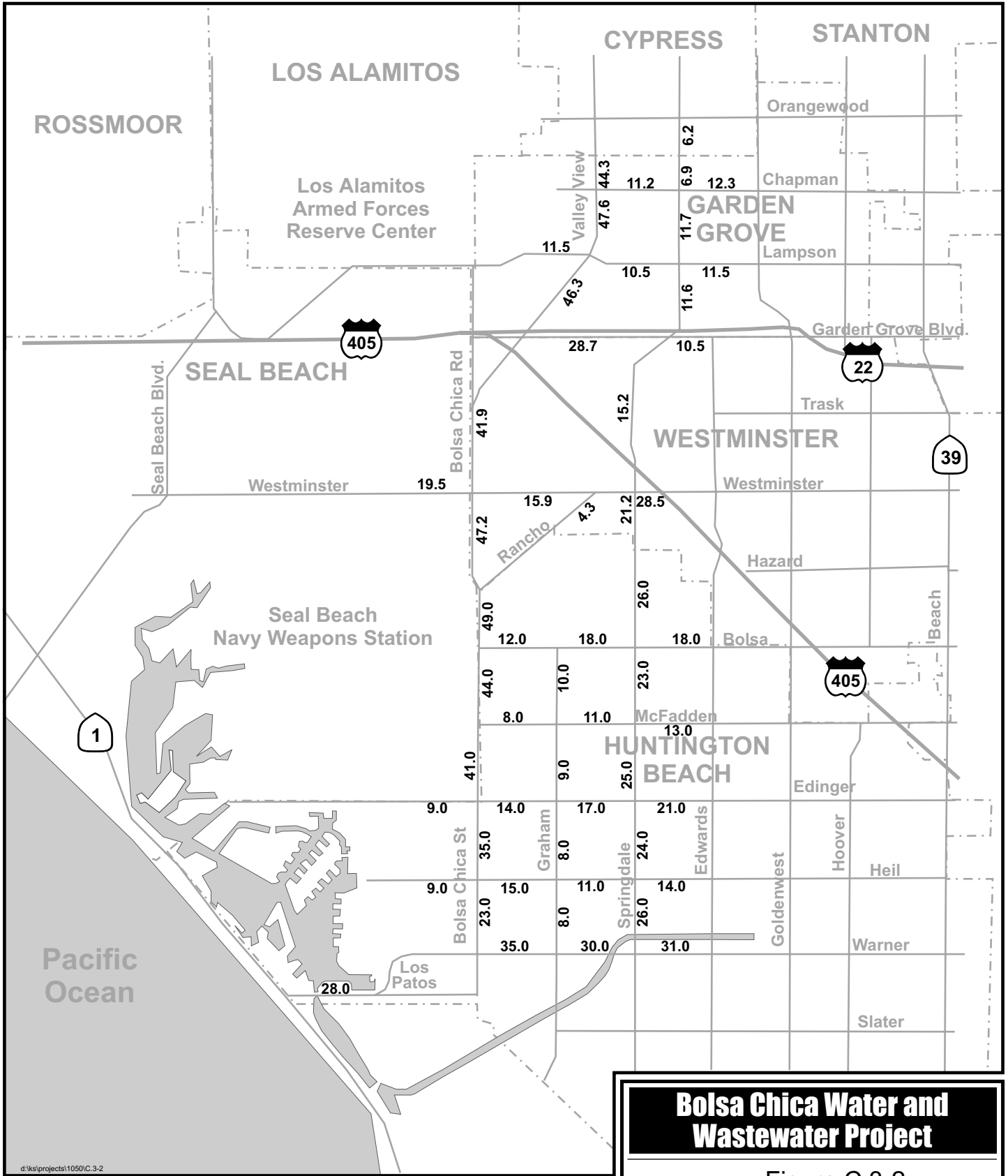
Scale in Miles

**Bolsa Chica Water Line  
 and Wastewater Project**

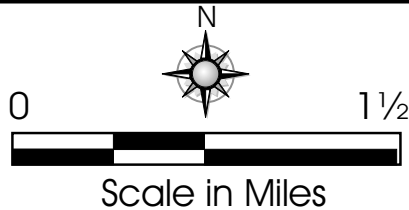
Figure C.3-1

**Roadway System Travel Lanes  
 and Intersection Controls**

**Aspen**  
 Environmental Group



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Based on a review of existing traffic volumes, previous traffic studies, and field observations, the following roadway segments and intersections were identified as experiencing congestion during peak periods:

#### **Roadway Segments**

- Bolsa Chica Road between Garden Grove Boulevard and Westminster Boulevard (LOS C/D)<sup>1</sup>
- Bolsa Chica Road between Westminster Boulevard and Rancho Road (LOS D)
- Bolsa Chica Street between Rancho Road and Bolsa Avenue (LOS D).

#### **Roadway Intersections**

- Bolsa Chica Road and Garden Grove Boulevard (LOS F)
- Springdale Street and Westminster Boulevard (LOS E)
- Valley View Street and Lampson Avenue (LOS D).

It is important to note that roadway segments adjacent to the intersections listed above are affected by the intersection operation and would likely experience some level of congestion during peak periods.

#### ***Land Use Access Conditions***

Due to the nature of the Bolsa Chica Water Line and Wastewater Service Project, construction of the pipeline has the potential to impact access to land use development adjacent to the pipeline route when the pipeline is proposed to be located within the right-of-way of a street. Therefore, access conditions along the proposed pipeline route and along route alternatives have been identified.

#### **Bolsa Chica Road**

Access to development adjacent to Bolsa Chica Road is served primarily by collector and local streets which intersect Bolsa Chica Road along the east side. Between Old Bolsa Chica Road and Rancho Road, land use east of Bolsa Chica Road is predominantly residential with only a small amount of commercial development between Westminster Boulevard and Rancho Road. Where commercial development exists, access is typically served by driveways.

The Seal Beach U.S. Naval Weapons Station is located west of Bolsa Chica Road and no access streets or driveways currently exist between Old Bolsa Chica Road and Rancho Road.

#### **Bolsa Chica Street**

As with Bolsa Chica Road, access for development adjacent to Bolsa Chica Street is primarily served by both collector and local streets (for residential and industrial uses) and direct access driveways (for commercial use). The Boeing Company is located just south of Rancho Road and access for this major employment center is served primarily by Skylab Road. With the exception of a few residential apartment/condominium developments, which access Bolsa Chica Street via driveways, all adjacent single-family residential development north of Warner Avenue is accessed by collector and local streets,

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<sup>1</sup> The Level of Service on Bolsa Chica Road between Garden Grove Boulevard and Westminster Boulevard varies from LOS D (for the four-lane section near Garden Grove Boulevard) to LOS C (for the six-lane section near Westminster Boulevard).

which intersect Bolsa Chica Street. Between Warner Avenue and Los Patos Avenue, however, there are several private residences, which gain access directly from Bolsa Chica Street.

Commercial centers and individual commercial establishments typically gain access to Bolsa Chica Street via direct access driveways. Most commercial uses are located in the vicinity of the major street intersections with Bolsa Chica Street.

Seal Beach U.S. Naval Weapons Station is located adjacent to and west of Bolsa Chica Street between Rancho Road and Edinger Avenue. No driveway or street access is currently provided along Bolsa Chica Street to this property.

### **Los Patos Avenue**

Land use along Los Patos Avenue is predominantly single-family residential and access is provided via intersecting local streets and private driveways.

### **Springdale Street**

Land use adjacent to Springdale Street is primarily residential in nature between Orangewood Avenue and the State Route 22 overcrossing. Several schools are also located along this segment of Springdale Street. While access to residential uses is provided only via collector and local street intersections, school access is typically served by driveways.

South of State Route 22, land uses along Springdale Street consist of a mix of residential, commercial, and industrial/business park uses. Both collector/local street intersections and driveways are used as access to Springdale Street. There are only a few residences which front onto Springdale Street and gain access via a private driveway.

### **McFadden Avenue**

Land uses along McFadden Avenue between Springdale Street and Graham Street are non-residential (e.g., commercial, industrial/business park) in nature and are served by both minor street intersections and driveways.

### **Graham Street**

Development adjacent to Graham Street between McFadden Avenue and Heil Avenue includes both residential and non-residential uses. Residential uses are clustered at the south end of this segment between Edinger Avenue and Heil Avenue. Access to residential uses is provided by local street intersections. Between McFadden Avenue and Edinger Avenue, development adjacent to Graham Street includes a mix of commercial and industrial/business park uses. Access to Graham Street in this area is provided by both minor street intersections and direct access driveways.

### **Heil Avenue**

Existing land uses adjacent to Heil Avenue between Graham Street and Bolsa Chica Street includes both residential uses (near Graham Street) and non-residential uses (near Bolsa Chica Street). Access to Heil Avenue is served by a combination of minor street intersections and driveways.

### **Lampson Avenue**

Most development adjacent to Lampson Avenue, west of Bolsa Chica Channel, is residential in nature except for an office complex on the north side of the street. Access to residential development both north and south of Lampson Avenue is provided by local street intersections. The office building and nearby park and ride lot are accessed via driveways.

### **Transit Service**

Several Orange County Transit Authority (OCTA) bus routes cross one or both proposed alignment of the water transmission line, and/or traverse Bolsa Chica Street. Bus routes that may be affected by the construction of the pipeline include OCTA Routes 54, 56, 60, 64, 70, 72, 164, 211, and 701. As depicted in Figure C.3-3, the majority of these routes cross the proposed pipeline alignment at major intersections such as Westminster Boulevard, Edinger Avenue, and Warner Avenue rather than traversing Bolsa Chica Street. A description of the general routing of each bus route, along with route service frequency is given below.

#### **Route 54**

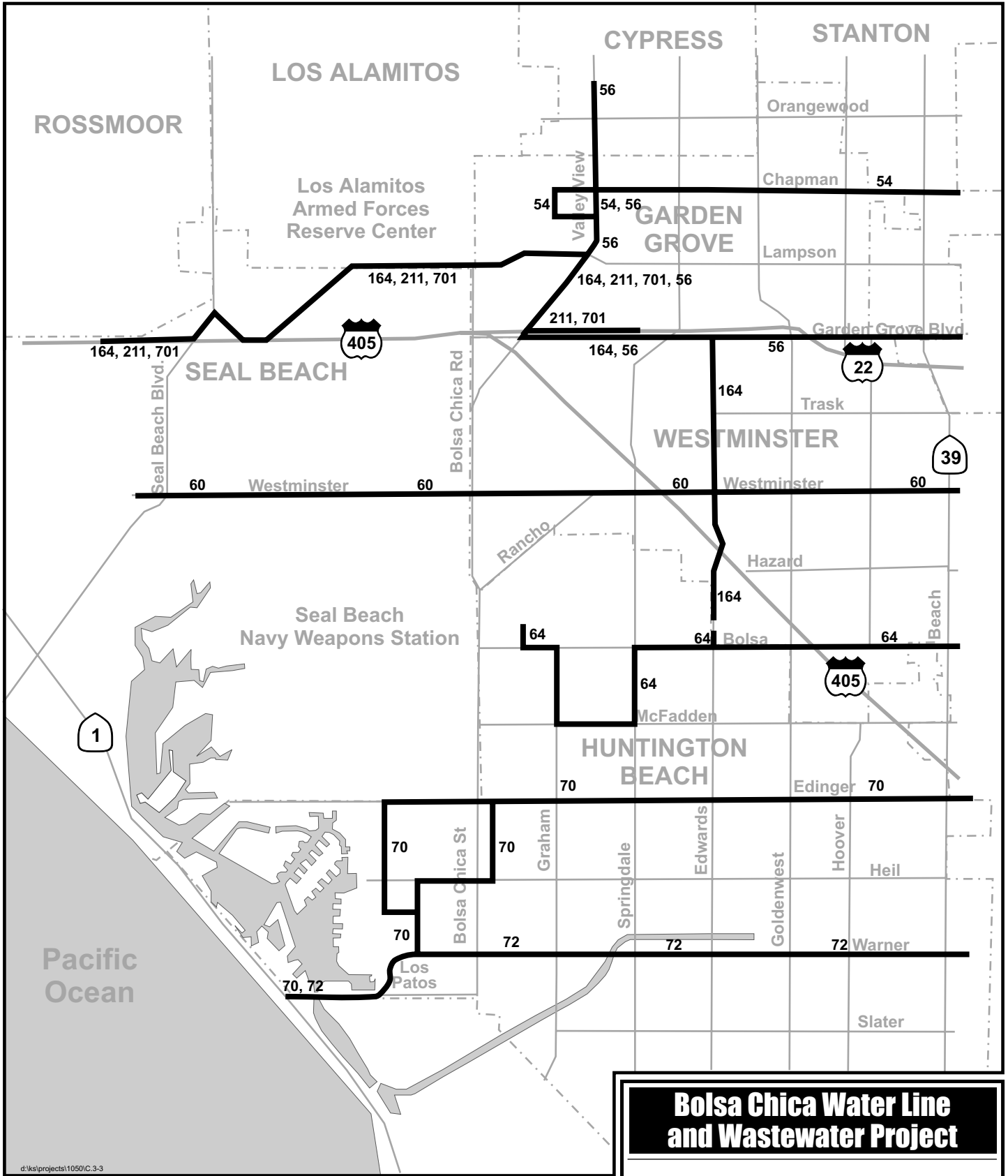
OCTA bus Route 54 runs east-west along Chapman Avenue in the City of Garden Grove, terminating at Belgrave and Valley View Streets. It runs near the proposed pipeline alignment, but does not cross or run adjacent to it. Route 54 has headways<sup>2</sup> of 20 minutes in the peak hours and 20-30 minutes in the off-peak hours.

#### **Route 56**

OCTA bus Route 56 runs north-south along Valley View Street and east-west along Garden Grove Boulevard in the Cities of Garden Grove and Westminster, respectively. Route 56 runs near the proposed pipeline alignment, but does not cross or run adjacent to it. Route 56 has headways of 30 minutes in the peak and mid-day hours and 60 minutes in the nighttime off-peak hours.

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<sup>2</sup> Transit service headway is defined as the time interval between consecutive buses serving a particular route. This time interval is a schedule-driven target that the transit provider strives to maintain. For example, buses may be scheduled to pass any given point along the route every 15 minutes during peak periods and every 30 minutes during off-peak periods. Actual headways can be measured at any bus stops along a route or at the end points of a route. It is not uncommon for actual service headways to vary slightly from the scheduled headways due to unforeseen disruptions encountered by the bus driver.



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**Bolsa Chica Water Line and Wastewater Project**

Figure C.3-3  
**Existing Transit Routes**  
*Aspen*  
 Environmental Group



### **Route 60**

OCTA bus Route 60 runs east-west along Westminster Boulevard in the City of Westminster. It crosses the proposed Bolsa Chica pipeline alignment at Bolsa Chica Road and Westminster Boulevard. Route 60 has headways of 10-15 minutes during the peak hours and 15-30 minutes during the off-peak hours.

### **Route 64**

OCTA bus Route 64 runs east-west along Bolsa Avenue in the Cities of Westminster and Huntington Beach, terminating at the Boeing facility on Bolsa Chica Street. It runs near the proposed pipeline alignment, but does not cross or run adjacent to it. This route has headways of 30 minutes in the peak hours and no off-peak service in the study area.

### **Route 70**

OCTA Route 70 runs east-west along Edinger Avenue in Huntington Beach. It runs along the proposed pipeline alignment on Bolsa Chica Street between Edinger Avenue and Heil Avenue. Route 70 has headways of 30 minutes during both the peak and off-peak hours.

### **Route 72**

OCTA bus Route 72 runs east-west along Warner Avenue in Huntington Beach. It crosses the proposed pipeline alignment at Bolsa Chica Street. Route 72 has 30-minute headways during both the peak and off-peak hours.

### **Routes 164, 211, and 701**

OCTA Routes 164, 211, and 701 run along Lampson Street in Seal Beach, Valley View Street in Garden Grove, Garden Grove Boulevard in Westminster (164 only), and Edwards Street in Westminster (164 only). Route 164 has headways of 1 hour throughout the day, while Routes 211 and 701 have headways of 30 minutes (peak periods only).

#### **C.3.1.2 Regulatory Setting**

Construction of the proposed pipeline could potentially affect roadway conditions, access, traffic flow, and parking on public streets and highways. Therefore, it will be necessary for the applicant and/or the construction contractor to obtain encroachment permits or similar legal agreements from the public agencies responsible for each affected roadway. These encroachment permits would be issued by Caltrans and the various cities along the pipeline route.

Some cities will require the preparation of transportation management plans for each location where a roadway would be directly affected by pipeline construction activities, and such plans would be subject to approval by the responsible jurisdiction. These transportation management plans would typically be required to incorporate the standards and techniques presented in such references as the Caltrans' Traffic Manual, Chapter 5, "Manual of Traffic Controls for Construction and Maintenance Work Zones," the "Work Area Traffic Control Handbook," and/or the "Standard Specifications for Public Works Construction," as specified by each affected jurisdiction. The transportation control plans would include traffic control measures, methods of advance notification for businesses along the route, telephone

numbers to call if there are problems during construction, and other procedures that may be necessary during the construction phase.

### **C.3.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

#### **C.3.2.1 Significance of Criteria**

A specific set of criteria has been formulated for the purpose of evaluating the significance of traffic and circulation impacts associated with the Proposed Project. Impacts are considered significant if one or more of the following conditions are expected:

- The project contributes measurable traffic to a location and the added traffic adversely changes roadway system service levels
- The project measurably reduces roadway capacity and adversely changes roadway system service levels
- The project adversely impacts access to properties adjacent to the project corridor
- The project adversely impacts transit services
- The project adversely impacts non-motorized modes of transportation (e.g., bicycle, pedestrian).

#### **C.3.2.2 Impacts of the Proposed Water Transmission Line**

The Proposed Project involves construction of a pipeline between an existing SCWC water main located in the City of Cypress to a water distribution facility located on Bolsa Chica Mesa. It is anticipated that the typical construction zone would range from 20 to 30 feet in width and from 200 to 300 feet in length to accommodate the activities of digging a trench, installing the pipe, backfilling the trench, compacting the fill material, and re-paving the surface area. The construction would generally progress along the route at an advancement rate of approximately 100 feet of pipeline per day, but could require three to six days to cross major arterial intersections. The required construction zone would likely block one or two travel lanes where the pipeline route is located within a roadway. Construction activities would typically occur on Monday through Friday between 7:00 a.m. and 6:00 p.m. unless otherwise restricted by the affected local jurisdiction.

Construction activities related to the water transmission line project were assessed to have potential traffic and circulation impacts involving the following conditions:

- Added construction-related traffic
- Reductions in roadway capacity
- Blockage of adjacent property access
- Disruption of transit service
- Disruption of bicycle and pedestrian circulation.

The following sections include a discussion of the various potential impacts which are expected to result from the Bolsa Chica Water Transmission Lane Project and the identification of recommended mitigation measures where impacts are assessed to be potentially significant.

### **Impacts of Added Traffic**

The proposed water transmission line project would result in the presence of construction-related traffic. This traffic would be generated by construction workers, construction equipment, and hauling trucks. Most workers would meet in a staging yard and then go to the construction site in the work trucks and pick-up trucks. As currently proposed, this added traffic would be present at three different locations along the pipeline route as the construction progresses along the route. Construction-related traffic would be added to area traffic for the duration of the project construction period.

The volume of added traffic related to project construction activities is not expected to be at levels which would measurably and adversely impact roadway system service levels.

**Impact:** Added traffic generated by construction workers, construction equipment, and hauling trucks (**Class III**).

**Mitigation Measures:** None required.

### **Impacts on Roadway System Capacity**

As described earlier in this section, the typical construction zone within a roadway would effectively block one or two travel lanes depending on the location. The blockage of “through” traffic lanes is typically limited to one direction of travel on each street that is impacted. At intersections, the blockage of ‘through’ travel lanes may occur along one direction of each street. Additionally, one or more ‘left turn’ lanes may be affected. Typical traffic control plans would maintain at least one through lane open to traffic at any location that is affected. The duration of the lane blockage would generally be limited to weekdays between 7:00 a.m. and 6:00 p.m. and any given location would be impacted for a period ranging from one day to six days. The Bolsa Chica Street/Road corridor, between Warner Avenue and Old Bolsa Chica Road, would be impacted for a longer period as the pipeline construction project progresses along this segment of the route.

The loss of roadway/intersection capacity related to the pipeline construction is substantial and service levels will be adversely impacted along the Bolsa Chica Street/Road corridor. Given the nature of the impact, mitigation measures can minimize impacts on traffic flow but not to less-than-significant levels. It is important to note that while these impacts are evaluated to be significant and unavoidable (**Class I**) impacts, they are temporary in nature and pre-project conditions will be restored once the pipeline construction is completed.

**Impact:** The loss of roadway/intersection capacity during pipeline construction would adversely impact service levels along the Bolsa Chica Street/Road corridor (**Class I**).

**Mitigation Measures:** The effects of the construction activities on roadway capacity reduction and level of service can be minimized by implementing the following mitigation measures:

- T-1** The construction contractor shall prepare traffic control/management plans for construction of the pipeline within each of the affected jurisdictions. These traffic control plans shall be reviewed and approved by the affected public agency prior to the commencement of work. The traffic control/management plan shall specify the times during which construction activities will occur and particular times when travel lanes cannot be blocked (e.g., peak traffic periods as directed by the affected City Engineer). The plans shall provide details regarding the placement of traffic control and warning devices and detours, and indicate whether the trench must be covered and/or plated during times of non-construction. The plans shall also identify haul routes for trucks delivering construction equipment and materials. The traffic control/management plans must include a continual coordination program with the affected agencies to allow for adjustments and refinements to the plan once construction is underway.
- T-2** SCWC shall prepare a public information program to inform area residents, workers and business owners of the construction schedule and anticipated traffic impacts. This will include information which advises the affected public of alternative access routes. The dissemination of the public information program shall be coordinated with the construction notice described in Mitigation Measure N-1.

### **Impacts on Local Development Access**

The proposed water transmission line project will involve construction activities that have the potential to periodically block or partially block vehicular access to development adjacent to the pipeline route. Local development access impacts can occur either directly to development driveways (where development front directly onto the affected street) or indirectly at local/collector street intersections along the affected route. Since detailed plans have been prepared for the proposed water transmission pipeline routing, it is possible to discuss the potential for specific types of vehicular access impacts to occur adjacent to the project. This discussion also reflects the anticipated access conditions that would result from implementation of traffic control plans that have already been prepared (in draft form) for construction of the pipeline within the City of Huntington Beach. The potential for specific types of vehicular access impacts to occur is discussed below by pipeline segment.

**Orangewood Avenue.** The proposed pipeline would cross the westbound lane of Orangewood Avenue at the exit of the Los Alamitos Naval Base Golf Course and then assumes an alignment near the center of Orangewood Avenue. Temporary access disruption would occur at the golf course access point as well as at Truk Street and Samoa Street as the construction zone passes these access points. The residential area served by these local street intersections has alternate access available on Valley View Street.

**Lampson Avenue.** No access related impacts are expected as a result of the pipeline construction crossing this street.

**Old Bolsa Chica Road.** The proposed pipeline would be located along the centerline of Old Bolsa Chica Road. There are currently three driveways located along the east side of Old Bolsa Chica Road which would have partial and temporary access impacts as construction progresses along this street.

**Bolsa Chica Road – Rancho Road To Old Bolsa Chica Road.** From Rancho Road to a point just south of Westminster Boulevard, the pipeline is proposed to be located under the northbound traffic lanes approximately 7 feet from the eastside curb face. As the pipeline crosses Westminster Boulevard, it transitions to the west side of the northbound lanes adjacent to the raised median islands. The pipeline remains in the general location until it reaches Old Bolsa Chica Road. Here it crosses the southbound lanes of Bolsa Chica Road and then assumes an alignment along Old Bolsa Chica Road.

Construction of the proposed pipeline along this segment of Bolsa Chica Road would have varying degrees of impact on vehicular access at 6 local/collector street intersections and 4 direct access driveways. Two of the driveways, which are located well south of Westminster Boulevard, would be effectively blocked for one or two days as the pipeline construction zone progresses past these access points. The remaining two driveways are located immediately south of Westminster Boulevard, in an area where the pipeline is transitioning to the west side of the northbound lanes. It is not expected that these driveways would be significantly impacted by the pipeline construction.

Access impacts at intersecting local/collector streets in this segment are expected to be similar to those discussed in the previous segment. Some turning movements at each intersection would be blocked for periods ranging from one to three days. Development areas served by these local/collector street intersections have other street outlets located at a different location on Bolsa Chica Road or on another major street which is parallel or perpendicular to Bolsa Chica Road.

**Bolsa Chica Street – Warner Avenue To Rancho Road.** In this segment of Bolsa Chica Street, the pipeline is proposed to be located in the eastern half (under the northbound travel lanes) of Bolsa Chica Street. The transition of the pipeline from the west side to the east side of Bolsa Chica Street occurs immediately south of Warner Avenue. As the pipeline crosses Warner Avenue it is aligned approximately 14 feet from the east curb line. Approximately 200 feet north of Warner Avenue, the pipeline jogs to the west and assumes an alignment along the east side of the median island to Heil Avenue. Just north of Heil Avenue, the pipeline transitions to the east side of the northbound lanes, approximately 15 feet from the face of curb. This alignment is maintained to Edinger Avenue where it jogs again and returns to a position next to the median island. This alignment is maintained to a point just south of Rancho Road.

Construction of the proposed pipeline along this segment of Bolsa Chica Street will have varying degrees of impact on vehicular access at 9 local/collector street intersections and 23 direct access driveways. The most significant impacts would occur just north of Warner Avenue and between Heil Avenue and Edinger Avenue. These are segments where the pipeline construction zone would typically abut the east curb and would effectively block one or more direct access driveways for periods of one to two days. There are two commercial business driveways located just north of Warner Avenue and four commercial driveways between Heil Avenue and Edinger Avenue.

Since most driveway access points do not have median breaks where turning movements can be made, the remaining segments where the pipeline is located adjacent to the median island would have little or no access impacts on existing driveway access.

Access impacts at intersecting local/collector streets in this segment are similar regardless of the exact location of the pipeline. As the pipeline construction zone progresses through the intersection, some of the turning movements to and from these streets will be blocked for periods ranging from one to three days. The partial and temporary blockage of access at these intersections is significant, however, the development areas served by these streets have other street outlets either at a different location on Bolsa Chica Street or onto another major street which is parallel or perpendicular to Bolsa Chica Street.

**Bolsa Chica Street South of Warner Avenue.** As proposed, the pipeline would be located within the west half of Bolsa Chica Street approximately 20 feet from the curb line. Within the segment, there are approximately six driveways, which provide direct access to adjacent residential properties. Pipeline construction activities will require that one or more driveways be temporarily blocked during construction periods (e.g., 7:00 a.m. to 6:00 p.m.). In most cases, individual driveways would only be periodically blocked for one or two days as the pipeline construction progresses along the street. Between the hours of 6:00 p.m. and 7:00 a.m. the pipeline trench would be covered with steel plates and access would be restored.

**Los Patos Avenue.** Since the proposed pipeline is proposed to be located along the south edge of Los Patos Avenue (off of the street), there should be minimal impacts on access to existing developed properties located along the north side of the street. The only potential for temporary and minor access impacts would be to properties in the immediate vicinity of Bolsa Chica Street. Here the pipeline turns north, across Los Patos Avenue, and assumes an alignment within the west half of Bolsa Chica Street. While none of the residences in this area would have their driveways blocked, approximately four residences may experience some inconvenience (e.g., slower speeds, narrower lane widths, temporary lane blockages) associated with vehicular access to and from eastbound Los Patos Avenue during a portion of this construction phase.

The significance of project impacts on access fall into two categories. Since access blockages involving direct access driveways often do not have alternative access available, many of these impacts would be considered significant and unavoidable (**Class I**). It is important to note that these impacts would be temporary in nature and would typically be limited to the hours of construction. Access impacts involving local/collector street intersections which serve adjacent development areas are also significant but can be mitigated to less than significant levels. This category of access impact is evaluated as significant, but capable of being mitigated to a less than significant level (**Class II**).

**Impact:** Construction activities have the potential to periodically impede vehicular access to development adjacent to the pipeline route, thus causing impacts that range from significant (**Class I**) to significant, but mitigable (**Class II**).

**Mitigation Measure:** The effects of the project construction activities on local development access can be minimized by implementing the following mitigation measure.

**T-3** SCWC shall provide property owners and tenants likely to have driveway access disrupted by construction activities with seven-day advance written notice of the disruption as described in Mitigation Measure N-1. In addition, disruption to access will be minimized by (i) placing steel plates across trenches so that they can be crossed by car as soon as trenching has been completed; (ii) ensuring that all properties are accessible at the end of each work day; and (iii) backfilling progressively.

### Impacts on Transit Service

Several OCTA bus routes cross the proposed pipeline alignment. The bus routes that may be affected by the construction of the pipeline include OCTA routes 60, 70, 72, 164, 211, and 701. Several of these routes cross the proposed alignment at major intersections such as Westminster Boulevard, Edinger Avenue, and Warner Avenue. Impacts of construction in these cases will typically be limited to three to six days in duration as the pipeline construction advances across the impacted intersection. In other cases, the bus route may run along the actual alignment of the pipeline, which would likely result in more substantial impacts to transit service.

In most cases, streets and intersections will remain open to traffic during the construction period, but substantial delays may result due to one or more lanes being closed. The lane closures may also result in individual bus stops being inaccessible to embarking or disembarking passengers. OCTA would have the option of routing buses around streets and intersections impacted by the pipeline construction or continuing with normal routing of buses with delays to be expected in the construction zones.

Service on several OCTA bus routes would be significantly affected by the pipeline construction, as described in the following paragraphs. The significance of the impacts would vary depending on the road segment to be affected and the service frequency and scheduling of the individual bus routes. For routes that merely cross the pipeline alignment, impacts would be far less than for those which run along the alignment. Service disruptions in some cases may continue for a month or more when the pipeline alignment is along a bus route. In cases where the bus route merely crosses the pipeline alignment, the service disruption would last no more than three to six days. In either case, delays due to lane closures or re-routings may be significant and may require additional buses on the route to maintain adequate service frequency and headways.

The following bus routes would be significantly impacted by the pipeline construction along the proposed pipeline alignment:

**Route 60.** OCTA bus route 60 runs east-west along Westminster Boulevard in the City of Westminster. It crosses the proposed pipeline alignment at Bolsa Chica Road and Westminster Boulevard. Route 60 has headways of 25-30 minutes in the project area during both the peak and off-peak hours. Existing layover<sup>3</sup>

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<sup>3</sup> Transit routes typically have one or more “layover” points (e.g., usually at the endpoints of a route) where the bus drivers can take a break before resuming their route. A sufficient number of additional buses are dispatched along each route to allow for the scheduling impacts associated with layovers. The presence of additional buses at layover points allows the transit provider to compensate for minor disruptions and delays that may occur along a route.

times of 10-15 minutes should be adequate to allow for delays due to pipeline construction. The delays to this route would continue for three to six days as construction of the pipeline advances across Westminster Boulevard.

**Route 70.** OCTA bus route 70 runs east-west along Edinger Avenue in the City of Huntington Beach. It crosses the proposed preferred pipeline alignment at Bolsa Chica Street and Edinger Avenue. It also traverses the route of the proposed alignment on Bolsa Chica Street between Edinger Avenue and Heil Avenue. Route 70 has headways of 30 minutes in the study area during both peak hours and off-peak hours. Transit service on Route 70 will be disrupted for a period of approximately 26 working days as construction of the pipeline advances along Bolsa Chica Avenue between Edinger Avenue and Heil Avenue. Although the route itself will not be blocked, there will be delays as one or two lanes on northbound Bolsa Chica Street are closed to traffic. Bus stops along Bolsa Chica may also be inaccessible for periods up to three days as construction of the pipeline advances. Existing layover times of 30 minutes should be adequate to allow for delays due to pipeline construction.

**Route 72.** OCTA bus route 72 runs east-west along Warner Avenue in Huntington Beach. It crosses the proposed pipeline alignment at Bolsa Chica Street and Warner Avenue. In the project area, Route 72 has 30-minute headways in the peak periods and 60-minute headways in the off-peak periods. Transit service on Route 72 will be disrupted for a period of three to six days as construction of the pipeline advances across Warner Avenue. Existing layover times of 10 minutes may not be adequate to allow for delays due to pipeline construction.

**Routes 164, 211, and 701.** OCTA routes 164, 211, and 701 run along Lampson Avenue in Seal Beach, Valley View Street in Garden Grove, Garden Grove Boulevard in Westminster (164 only), and Edwards Street in Westminster (164 only). Route 164 has headways of one hour throughout the day, while routes 211 and 701 have headways of 30 minutes (peak periods only). There will be transit service disruptions to these bus routes where they cross the main alignment at the Bolsa Chica Channel. Service disruptions would consist of delays as one lane of traffic is closed on each side of Lampson Avenue to allow for construction equipment.

**Impact:** Pipeline construction would cause temporary disruption to bus routes along the proposed route alignment (**Class II**).

**Mitigation Measures:** Implementation of the following mitigation measures would reduce impacts to transit services to a less-than-significant level.

**T-4** SCWC or its contractor shall coordinate with OCTA to confirm routes affected by the pipeline construction. Sufficient notification as to the exact dates when delays can be expected or service adjustments will be necessary shall be provided to OCTA. It is recommended that OCTA post notices at bus stops and on buses along affected routes to notify passengers of potential delays or service adjustments on these routes.

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When individual buses get behind schedule, the layover time can be reduced for that bus in order to get it back on schedule.



**T-5** Traffic control/management plans (T-1) which need to be prepared for the affected jurisdictions or agencies shall identify all bus stops in the immediate vicinity of construction zones and shall make provisions for these bus stops to remain accessible. In cases where the blockage of existing bus stops cannot be avoided, SCWC/contractor shall coordinate with OCTA to provide temporary bus stop locations.

### **Impacts on Bicycle and Pedestrian Circulation**

Several bicycle routes run along or cross the proposed alignment of the water transmission line. The bicycle lanes that may be most affected by the construction of the pipeline are on Bolsa Chica Street between Bolsa Avenue and Edinger Avenue. These lanes run along each side of the street and may be blocked during the construction period. The disruption of bicycle traffic in this case could last for approximately two months.

The bicycle lanes on Lampson Avenue cross over the pipeline alignment at the Bolsa Chica Channel, and may be blocked for several days while the pipeline construction advances across Lampson Avenue. Other bicycle routes that may be similarly affected are on McFadden Avenue, Edinger Avenue, and Heil Avenue. Each of these streets has bicycle lanes, which either cross Bolsa Chica Street or intersect with the bicycle route on Bolsa Chica Street. In each case the impact would last from 3 to 6 days depending on location. It will still be possible for bicyclists to travel along the affected street, but the bicycle lanes themselves may be temporarily blocked.

In situations where the bicycle lanes are blocked, it may be necessary for bicycles and automobiles to share a traffic lane during the period of pipeline construction. This may cause some delay to automobile traffic in the affected area depending on lane width, as cars are forced to share a lane with substantially slower bicycle traffic. Another alternative would be to redirect bicycle traffic to parallel street bike routes which are not impacted by the pipeline construction.

There are a significant number of pedestrian crosswalks, which may be affected by the pipeline construction. The majority of these crosswalks cross Bolsa Chica Street itself between Westminster Avenue and Warner Avenue. Other crosswalks running parallel to Bolsa Chica are not expected to be blocked or otherwise adversely affected by the progress of pipeline construction.

Pedestrian crosswalks cross the proposed pipeline alignment at the following locations:

- Duncannon Street (north leg only)
- Westminster Boulevard
- St. James Street (north leg only)
- Churchill Street (north leg only)
- Bolsa Avenue (north leg only)
- Argosy Street (north leg only)
- McFadden Avenue
- Edinger Avenue
- Heil Avenue
- Warner Avenue.

In most cases these crosswalks are lightly utilized due to the nature of land use on the west side of Bolsa Chica Street. In all cases where the pedestrian crosswalk is adversely impacted by the construction process the impact to individual crosswalks would last from three to six days as pipeline construction advances across the impacted intersection and/or crosswalk. It should be noted that the construction sequence at intersections occurs in multiple phases and in many cases an alternate crosswalk will be available at the intersection.

**Impact:** Temporary disruption to pedestrian and bicycle circulation during construction (**Class II**).

**Mitigation Measures:** Implementation of the following mitigation measures would reduce impacts on bicycle and pedestrian circulation to a less-than-significant level.

**T-6** SCWC or its contractor shall identify bicycle routes that will be affected by the pipeline construction. Temporary bike route signs shall be placed along alternate routes. These routes may be along Bolsa Chica Street itself, so that bicycles will share a lane of traffic with automobiles, or along a parallel street such as Graham Street. Sufficient notification of construction schedules will be given to local jurisdictions to allow for timely placement of alternate bicycle route signs.

**T-7** SCWC or its contractor shall prepare a management plan for the affected jurisdictions or agencies to identify all pedestrian crosswalks in the immediate vicinity of construction zones. Provisions for alternate crosswalks shall be provided to allow safe crossing points for pedestrians over Bolsa Chica Street.

**C.3.2.3 Summary of Impacts and Mitigation Measures**

A summary of traffic and circulation impacts associated with the Proposed Project and the applicable mitigation measures are presented below in Table C.3-1.

**Table C.3-1 Impact and Mitigation Summary – Traffic and Circulation**

<b>Impact</b>	<b>Class</b>	<b>Mitigation Measures</b>
Traffic added to local streets by construction vehicles	III	None
Temporary reduction in service levels on local streets and intersections during construction	I	T-1, T-2
Temporary blockage of vehicular access to properties during construction	I/II	T-3
Temporary disruptions to bus routes during construction	II	T-4, T-5
Temporary disruption to pedestrian and bicycle circulation during construction	II	T-6, T-7