D. ALTERNATIVES DESCRIPTION AND COMPARISON

D.1 ALTERNATIVES PROCESS OVERVIEW

D.1.1 CEQA REQUIREMENTS FOR ALTERNATIVES

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a proposed project. In addition to mandating consideration of the No Project Alternative, the *CEQA Guidelines* (Section 15126(d)) emphasize the selection of a reasonable range of technically feasible alternatives and adequate assessment of these alternatives to provide a comparative analysis for consideration by decision makers.

CEQA requires consideration of a range of alternatives to the project or project location that: (1) could feasibly attain most of the basic project objectives; and (2) would avoid or substantially lessen any of the significant impacts of the Proposed Project. An alternative cannot be eliminated simply because it is more costly or could impede the attainment of project objectives to some degree. However, the *CEQA Guidelines* declare that an EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote or speculative.

CEQA does not require that the discussion of alternatives be at the same level of detail as the proposed action. However, CEQA does require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

This analysis does not focus on relative economic factors of the alternatives (as long as they are feasible) since the *CEQA Guidelines* require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may impede to some degree the attainment of project objectives or would be more costly.

D.1.2 ALTERNATIVES SCREENING PROCESS: PURPOSE AND METHODOLOGY

As described in Section B.5, Southern California Water Company's (SCWC) objective is to provide the proposed Bolsa Chica Planned Community project with a timely, reliable, long-term source of domestic water to meet projected domestic water demands and fire flow requirements. Alternatives to the Proposed Project must achieve this same basic objective while also reducing or avoiding potentially significant impacts associated with the project as proposed. To establish reasonable and feasible project alternatives for evaluation in the Supplemental EIR, a wide range of possible alternatives were identified and then a screening process was utilized to eliminate alternatives not suitable for further evaluation.

Alternatives to the Proposed Project were identified by investigating possible alternate routes for the proposed water transmission line and possible alternative water sources. Input received from the public and local jurisdictions during the EIR scoping process also helped identify possible alternatives. The alternatives screening process consisted of three steps:

Step 1: Definition of the alternatives to allow comparative evaluation.

Step 2: Evaluation of each alternative using the following criteria:

- Potential for reduction of significant impacts of the Proposed Project
- Technical and regulatory feasibility
- Consistency with SCWC's basic project objectives, as well as public policy objectives.

Step 3: Determination of the suitability of the proposed alternative for full analysis in the Supplemental EIR. If the alternative is unsuitable, it is eliminated from further consideration.

Feasible alternatives that did not clearly offer the potential to reduce significant environmental impacts, as well as alternatives not considered feasible, were removed from further consideration. In the final phase of the screening analysis, the environmental advantages and disadvantages of the remaining alternatives were carefully evaluated with respect to potential for overall environmental advantage, technical feasibility, and consistency with project and public objectives. These criteria are discussed in the following sub-sections.

D.1.2.1 Project Objectives

Objectives of the Proposed Project are described in Section B.2. For this screening analysis, general project objectives were taken into consideration, including both SCWC's "private" objectives, and the "public" policy objectives of the CPUC and other agencies. Section B.5 provides a description of SCWC's objectives for the Proposed Project. CEQA requires that objectives also be evaluated in terms of public policy goals, which are similar but not identical to those of SCWC. As stated above, CEQA does not require that alternatives meet all project objectives, but they should meet the primary objectives. The SCWC's objectives for the Bolsa Chica Water Transmission Line and Wastewater Service Project are described below:

- Provide a reliable, long-term domestic water supply for the Bolsa Chica Planned Community.
- Construct a water transmission system designed to meet the projected domestic water demands and fire protection needs of the Bolsa Chica Planned Community.
- Ensure the provision of an adequate and reliable wastewater collection and disposal system for the Bolsa Chica Planned Community.

D.1.2.2 Probable Significant Environmental Effects of the Proposed Project

If an alternative clearly does not provide any environmental advantages compared to the Proposed Project, it is eliminated from further consideration. At the screening stage, it is not possible to evaluate potential impacts of the alternative or the Proposed Project with absolute certainty. However, it is possible to identify elements of an alternative that are likely to be the sources of impacts and to relate them to general conditions of the subject area. In this screening analysis, a preliminary assessment of potential

significant effects of the Proposed Project was completed, resulting in identification of the following impacts considered likely to occur if the project is implemented:

- Traffic impacts from construction of the water pipeline along arterials and local streets
- Air quality and noise impacts on sensitive receptors (especially residential areas and schools) from construction of the water pipeline.
- Construction of the pipeline could permanently displace, alter, or disrupt the existing public and private utility lines and services.

D.1.2.3 Feasibility

For the screening analysis, the technical and regulatory feasibility of various potential alternatives was assessed. Specific feasibility analyses are not needed for this purpose. The assessment of feasibility was directed toward reverse reason, that is, an attempt was made to identify anything about the alternative that would not be feasible on technical or regulatory grounds. Note that CEQA does not require elimination of a potential alternative based on cost of construction and/or operation/ maintenance. For the Proposed Project, these issues relate to:

- Crossing of channels and freeways (boring under major channels or freeways requires an area for excavation on each side of the crossing). A substantial number of crossings could adversely affect the technical feasibility of water line construction.
- Availability of space in roads and utility or flood control corridors, and the likelihood of obtaining a right-of-way easement from these owners. If it is considered unlikely that a landowner (such as a federal or state agency) will provide the required permission for water line construction, an alternative may not be feasible.

D.1.3 SUMMARY OF SCREENING RESULTS

A number of route alternatives and alternative water sources were considered in an attempt to identify alternatives with the potential to reduce environmental impacts associated with the construction and operation of the proposed water transmission line for the Bolsa Chica Planned Community. Figure D-1 displays the initial array of alternatives evaluated in the screening process.

Each potential alternative was reviewed against the criteria described in Section D.1.2. A number of alternatives were eliminated based on the feasibility of constructing and operating a pipeline along the identified routes. Those alternatives that were found to be technically feasible and consistent with the applicant's objectives were reviewed to determine if the alternative had the potential to reduce the anticipated environmental impacts of the Proposed Project. Table D.1-1 summarizes the results of the alternatives screening analysis. Nine alternatives to the Proposed Project were reviewed in the alternatives screening process. In addition to the applicant's Proposed Project (the proposed Bolsa Chica Water Transmission Line route) and the No Action Alternative, four alternatives have been recommended for evaluation within the EIR; they are described in Section D.2. The other four alternatives were eliminated

during the screening process;. the rationale for screening-out each eliminated alternative is presented in Section D.1.4.

Table D.1-1 Alternatives Screening Recommendations

Alternatives Considered in Screening Process	Source	Included in EIR for Comparative Evaluation	Eliminated from Further Consideration in the EIR
1. Bolsa Chica Road (Proposed Project)	Application	√	
2. Bolsa Chica Channel	Scoping		√
3. Valley View Street / Bolsa Chica Road	Plan of Works		√
4. Anaheim–Barber City Channel Diagonal (Rancho Road)	Plan of Works	√	
5. Springdale Street/Graham Street	CPUC	√	
6. Connection to City of Huntington Beach Water Supply	CPUC	√	
7. Westminster Avenue / Seal Beach Boulevard	Plan of Works		√
8. North Seal Beach Wellfields	PEA	√	
9. New Water Well On-site	CPUC		√
10. Pacific Coast Highway Pipeline Route	PEA		√

PEA = Proponent's Environmental Assessment

D.1.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The following discussion describes the alternatives eliminated from further consideration in the EIR and the basis for their elimination.

D.1.4.1 Bolsa Chica Channel

During the NOP and EIR scoping period, concern was expressed by citizens and local cities about traffic congestion caused by pipeline construction in public streets, particularly Bolsa Chica Road. Therefore, possible alternatives were examined that would minimize construction on heavily traveled roadways. For the reason, the following alternative was considered because it would entail placing more of the pipeline adjacent to the Bolsa Chica Channel rather than in Bolsa Chica Road.

Placeholder for Figure D-1 Alternative Pipeline Routes Considered
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page 2 placeholder for Figure D-1

Description. This alternative would be the same as the Proposed Project from the point of connection along Orangewood Avenue to Interstate 405 (Orangewood Avenue to the Naval Base Golf Course, then south along Bolsa Chica Channel). South of Interstate 405, this alternative would cross (east to west) the Bolsa Chica Channel along the access road adjacent to the southern edge of the Interstate 405 ROW. The pipeline would then head south along the west maintenance road adjacent to the Bolsa Chica Channel to Westminster Boulevard. The pipeline would then cross Westminster Boulevard and Bolsa Chica Channel and enter the southbound lane (western lane) of Bolsa Chica Street. The pipeline would proceed south in Bolsa Chica Road to Rancho Road. At Rancho Road, the pipeline would enter the east maintenance road adjacent to the Bolsa Chica Channel and parallel the channel to Edinger Avenue. The pipeline would then cross Edinger Avenue and enter the southbound lane (western lane) of Bolsa Chica Street to Heil Avenue. At Heil Avenue, the pipeline would travel west along Heil Avenue (along westbound lane) to Green Avenue. The pipeline would then cross Heil Avenue and travel south down Green Avenue to Los Patos Avenue, then cross Los Patos Avenue and enter into the Bolsa Chica Planned Community site. The pipeline would then turn west and terminate at the proposed reservoir on Bolsa Chica Mesa.

Rationale for Elimination. Consultation with the Orange County Flood Control District has revealed a four-phase plan to upgrade flood control channels in the district, including proposed improvements to the Bolsa Chica Channel. Channel improvements are required to ensure that the Bolsa Chica Channel can accommodate peak flows associated with 100-year flood events. Locating the Bolsa Chica water transmission line in the maintenance road adjacent to the Bolsa Chica Channel would constrain these planned improvements. In addition, south of the I-405 freeway the Channel is located on land owned by the U.S. Naval Weapons Station. The Navy has granted an easement to the Orange County Flood Control District for the Channel. In general terms, it is the policy of the Department of the Navy to restrict the granting of easements on Navy property (Department of the Navy, 1995). Moreover, in this case, construction of the pipeline in the Flood Control District's easement would ensure that construction occurs in a zone demarcated by the Navy as being potentially affected by accidental explosion emanating from a nearby ammunition bunker. For these reasons, this alternative has been eliminated.

D.1.4.2 Valley View/Bolsa Chica Road

In developing the alignment for the proposed water line, this alternative was evaluated by SCWC as a possible pipeline route. This route was also evaluated as a possible alternative for the EIR.

Description. With this alternative route, the pipeline would connect to SCWC's water system at the same location as the Proposed Project along Orangewood Avenue. From the point of connection to SCWC's system, the pipeline would head south along Valley View Street to a point just north of Interstate 405. The pipeline would be bored under Interstate 405 as proposed, and then follow the alignment of the Proposed Project to the Bolsa Chica Mesa.

Rationale for Elimination. This alternative was eliminated because it does not provide any environmental advantage over the Proposed Project. This alternative would create substantial traffic impacts along Valley View Street during construction. North of the I-405, the Proposed Project would not

create substantial traffic or land use impacts because the pipeline would be located in the maintenance road adjacent to the Bolsa Chica Channel rather than in public streets. By contrast, this alternative would result in traffic impacts on Valley View Street that would not be experienced with the Proposed Project. These traffic impacts are *in addition* to the impacts created by the Proposed Project route.

D.1.4.3 Westminster Avenue/Seal Beach Boulevard

In developing the alignment for the proposed water line, this alternative was evaluated by SCWC as a possible pipeline route. This route was also evaluated as a possible alternative for the EIR.

Because the developer of the Bolsa Chica Planned Community proposes to utilize an onsite groundwater well as a supplemental water source, consideration was given to the use of groundwater wells to supply all the water needs of the proposed residential development project.

Description. This alternative utilizes an alternative water source for the Bolsa Chica Planned Community project -- the West Los Alamitos Wellfields. The pipeline route would start at the West Los Alamitos Wellfields, north of Interstate 405, just east of Seal Beach Boulevard. The pipeline would head south along Seal Beach Boulevard to Westminster Avenue, then head east along Westminster Avenue to Bolsa Chica Street. At Bolsa Chica Street, the pipeline would enter the northbound lane (western lane) of Bolsa Chica Street as proposed, and continue in the proposed alignment to the reservoir site on Bolsa Chica Mesa.

Rationale for Elimination. This alternative was eliminated from the supplemental EIR analysis because it does not provide any environmental advantage over the Proposed Project. In particular, this route would be approximately 1.4 miles longer than the proposed route. In addition, this route would be located within or adjacent to major roadways (i.e., Bolsa Chica Road, Westminster Boulevard, and Seal Beach Boulevard) almost the entire length of the route, potentially resulting in increased traffic impacts compared to the Proposed Project. These roadways have average daily traffic volumes between 20,000 and 45,000 vehicles.

D.1.4.4 New Water Well Onsite

Because the developer of the Bolsa Chica Planned Community proposes to utilize an onsite groundwater well as a supplemental water source, consideration was given to the use of groundwater wells to supply all the water needs of the proposed residential development project.

Description. An alternative to constructing the proposed pipeline would be to construct a groundwater well on Bolsa Chica Mesa as the sole source of water supply for the Bolsa Chica Planned Community project. The Bolsa Chica Planned Community project already incorporates an on-site groundwater well as a supplemental water source. Under this alternative, the amount of groundwater pumped from onsite wells would be increased to satisfy the total water demands of the proposed Bolsa Chica Planned Community

project. The average daily requirement for the proposed Bolsa Chica Planned Community has been calculated to be 540 gpm.

Rationale for Elimination. Although on-site well development appears favorable with regard to traffic and construction impacts, utilizing such a water source to meet the domestic water needs of residences proposed for the Mesa is problematic. Prudent water system criteria (including those from the California Department of Health Services) require a minimum of two sources of water supply. Additionally, water from the on-site well is not a desirable primary source of water because test results show colored water. Although the water is of sufficient quality for domestic consumption, the color reduces its attractiveness for this purpose. Finally, there is a risk of saltwater intrusion into the groundwater table as a result of drawdowns from any well developed in proximity to the coast. Reducing the required "take" from the on-site well is therefore prudent. For all these reasons, this alternative is not environmentally advantageous and was eliminated from further analysis.

D.1.4.5 Pacific Coast Highway Pipeline Route

This alternative was examined by the Applicant as a possible way to reduce traffic impacts along Bolsa Chica Road during construction.

Description. This alternative would tap into the West Los Alamitos Wellfields north of Interstate 405. The water transmission line would proceed south from the wellfields along Seal Beach Boulevard to the Pacific Coast Highway (PCH). At the PCH, the pipeline would proceed southeast along the PCH to Warner Avenue, then east along Warner Avenue/Los Patos Avenue before connecting with the proposed reservoir on Bolsa Chica Mesa.

Rationale for Elimination. This alternative takes advantage of only one source of water (i.e., well water), although from multiple wells. It is possible that a larger transmission pipeline (e.g., 24 inches) would be required to convey the water due to the length of the pipeline and resulting loss in pressure over the nearly 7.75-mile distance.

Temporary traffic, noise, and air quality impacts would result from the construction of the pipeline along this alternative route. Given the longer (one mile) route distance for this alternative, the impacts would be slightly greater for this alternative than those identified for the Proposed Project. Apart from length, this is particularly true for the Pacific Coast Highway segment, which would require spanning the bridge at Anaheim Bay. In addition, traffic impacts resulting from construction could be more severe given the high traffic volumes on both the Pacific Coast Highway and Seal Beach Boulevard. Because the alignment is longer (one mile), the air emissions (primarily particulates) would be slightly greater and the temporary noise impacts would extend over a longer period of time. For these reasons, this route does not offer environmental advantages in comparison to the proposed route.

D.2 ALTERNATIVES SELECTED FOR COMPARATIVE EVALUATION

In addition to SCWC's Proposed Project and the No Project Alternative, several other alternatives have been recommended for full analysis in this Supplemental EIR (see Figure D-2). The alternatives selected for evaluation in the EIR are described below. These alternatives were selected for evaluation because they fulfill the basic objectives of the project and have some potential to reduce the impacts of the Proposed Project, particularly potential traffic impacts during construction.

D.2.1 ALTERNATIVE 1: CONNECTION TO THE CITY OF HUNTINGTON BEACH WATER SYSTEM

The closest feasible alternative, from a technical and regulatory standpoint, for providing water service to the Bolsa Chica Planned Community project is connection to the City of Huntington Beach water supply and distribution system. The boundaries of the City abut the site of the Bolsa Chica Planned Community to the north and west. The City currently supplies water to these adjacent areas located within the City's boundaries.

The City has a 12-inch water main in nearby Warner Avenue. Connection to this water main would be the closest source of water. Since this main supplies a 'blended' water source, no augmentation by other sources would be required. There are a number of routes that a water line could take to provide a connection between the proposed residential development site and the water main in Warner Avenue. The best route appears to be connection at the intersection of Los Patos Avenue and Warner Avenue. Using this alignment, a pipeline could be constructed in the proposed pipeline easement on the northern side of the property on which the Bolsa Chica Planned Community would be located. This would result in minimal disturbance to the existing streets and to adjacent residences.

In recent testimony before the California Public Utilities Commission, the City asserted that it remained willing to be the water service provider following annexation of the Bolsa Chica Planned Community into the City (COHB, 1999). In an attempt to establish mutually agreeable terms for annexation, the proponent of the Bolsa Chica Planned Community (Hearthside Homes, Inc.) and the City have conducted a series of negotiations, but the two parties have not reached agreement regarding these terms. Aside from the question of annexation, for the City to be the provider of water to the proposed development, the City believes that some improvements to City infrastructure would be desirable. Specifically, to ensure sufficient pressure for emergency fire flows, it would be desirable to upgrade a 1,000-foot length of the City's water main in Bolsa Chica Street from 8- to 12-inches. In addition, the City has expressed an interest in increasing the operational storage on the proposed residential development site in order to provide sufficient fire flows for the Bolsa Chica Planned Community as

Placeholder for Figure D-2 -- Route Alternatives Analyzed in the EIR **(11x17 color)**
(2 pages, must start on odd page)

Page 2 placeholder for Figure D-2

well as surrounding areas. The size of operational storage on-site has been the subject of negotiation between the developer and the City of Huntington Beach.

No CPUC action would be needed for the City of Huntington Beach to supply water to the Bolsa Chica Planned Community Project.

D.2.2 ALTERNATIVE 2: ANAHEIM–BARBER CITY CHANNEL DIAGONAL (RANCHO ROAD)

This alternative would connect to the SCWC system further east on Orangewood Avenue at Holder Street. From the point of connection at Orangewood Avenue and Holder Street, the pipeline would head south along Holder Street/Springdale Street in the southbound lanes to the Route 22 freeway. At the Route 22 freeway, the pipeline would be bored under the freeway, and would then continue south along Springdale Street to the intersection of Springdale Street and Meinhardt Road. South of Meinhardt Road, the pipeline would cross the Anaheim–Barber City Channel and travel southwest along the southern maintenance road adjacent to the channel.

The pipeline would continue southwest along the southern maintenance road of the Anaheim–Barber City Channel, under Interstate 405 and across Westminster Boulevard, to Rancho Road. The pipeline would proceed southwest between the Anaheim–Barber City Channel and the southbound lane of Rancho Road to a point approximately 100 feet east of Bolsa Chica Road, where it would cross Rancho Road and continue south toward Bolsa Chica Road. The pipeline alignment turns south at the intersection of Rancho Road and Bolsa Chica Street and continues south as proposed in the northbound lanes of Bolsa Chica Street to Los Patos Avenue where the alignment turns west before terminating at the proposed underground reservoir on Bolsa Chica Mesa.

D.2.3 ALTERNATIVE 3: SPRINGDALE STREET/GRAHAM STREET

This proposed route would be the same as Alternative 2 (Anaheim–Barber City Channel Diagonal) from the point of connection to the Springdale Street/Meinhardt Road intersection. South of Meinhardt Road, the pipeline would continue south (in the southbound lanes) along Springdale Street to McFadden Avenue, then head west along McFadden Avenue to Graham Street. The pipeline would then head south along Graham Street to Heil Avenue, then west on Heil Avenue to Green Avenue (Green Avenue is located west of Bolsa Chica Street). The pipeline would then head south on Green Avenue to Los Patos Avenue, then cross Los Patos Avenue and enter the Bolsa Chica Planned Community site. The pipeline would then turn west and terminate at the proposed underground reservoir on Bolsa Chica Mesa.

D.2.4 ALTERNATIVE 4: NORTH SEAL BEACH WELLFIELDS

This alternative would supply water from the North Seal Beach Wellfields on Lampson Avenue. From the wellfields, the pipeline would head east along Lampson Avenue to the Bolsa Chica Channel, then follow the Proposed Project route south to the site of the Bolsa Chica Planned Community on the Bolsa Chica Mesa.

The North Seal Beach Wellfields are owned and operated by the City of Seal Beach. These wells are the primary water source for the City. While use of these wells to supply the Bolsa Chica Planned Community is technically feasible, the City and the proponent of the Bolsa Chica Planned Community would need to negotiate an agreement for the supply of water to the residential development.

No CPUC action would be needed for the City of Seal Beach to supply water to the Bolsa Chica Planned Community Project.

D.3 NO PROJECT ALTERNATIVE

With the No Project Alternative, SCWC would not serve as the water purveyor or the wastewater management agency for the Bolsa Chica Planned Community site and the proposed 6.7-mile domestic water transmission line would not be constructed. As a result, under the No Project Alternative, the various impacts associated with construction and operation of the proposed water transmission line would not occur. Without implementation of the Proposed Project, the proponent of the proposed residential development would be forced to find an alternative water supply for its project. As Section A.3 reveals, the proponent has investigated a number of potential water sources/suppliers, and found the current project to be the most feasible.

It should not be assumed that, under the No Project Alternative, the construction of the Bolsa Chica Planned Community would not proceed. There are other available water sources that could supply the residential development (as described in Section D.2), even though the developer does not favor these at this time. As previously described for Alternative 1, the City of Huntington Beach is the closest source of water for the proposed Bolsa Chica Planned Community. Provision of water from this source is contingent upon the annexation of the Planned Community into the City. There are, of course, other water supply alternatives (e.g., connection to the North Seal Beach wellfields), but these would all require the construction of a water transmission line of some length. Therefore, resultant actions associated with the No Project Alternative would most likely consist of either: (1) connection to the City of Huntington Beach's water system and the construction of the water facilities required for this connection; or (2) the construction of a water transmission line to bring water to Bolsa Chica from a source other than SCWC. As described in the preceding sections (Sections D.1 and D.2), there are impacts associated with either of these likely scenarios; however, connection to the City of Huntington Beach's water system would result in fewer and generally less severe impacts than other alternatives.

D.4 COMPARATIVE IMPACT ANALYSIS OF ALTERNATIVES

D.4.1 ALTERNATIVE 1: CONNECTION TO THE CITY OF HUNTINGTON BEACH WATER SYSTEM

As described in Section D.2.1, the closest feasible alternative for water service provision for the Bolsa Chica Planned Community project is connection to the City of Huntington Beach water supply and distribution system. The City has a 12-inch water main in nearby Warner Avenue. The best route for connection to the City's water system appears to be at the intersection of Los Patos Avenue and Warner

Avenue. Using this alignment, the pipeline could be constructed in the proposed pipeline easement on the northern side of the property on which the Bolsa Chica Planned Community will be located. The impacts of this alternative in comparison to the Proposed Project are discussed below.

Air Quality

As described above, this pipeline alternative would connect to the City of Huntington Beach water system at the intersection of Los Patos Avenue and Warner Avenue. The water line required to make this connection would be approximately 0.33 miles in length, much shorter than the Proposed Project route (6.7 miles). Because of the relatively short length of the water line, this alternative would have much lower emission levels associated with *construction activities* than the Proposed Project. As a result, no significant construction impacts would be anticipated for this alternative. All construction impacts would be considered adverse, but less than significant (**Class III**). Mitigation Measures A-1 through A-9 (see Section C.1) would help to further reduce emission levels associated with construction.

The air quality impacts associated with the *operation and maintenance activities* would be very similar to the Proposed Project. Operational emissions would be adverse, but less than significant (**Class III**).

Noise

This route alternative is the shortest alignment among the alternatives; therefore, noise impacts associated with construction activities would be substantially reduced compared to construction of the Proposed Project. Ambient noise levels along this route are similar to the level that was measured at sample location 8 (see Table C.2-2), which was approximately 55 dBA. However, ambient levels are expected to increase to between 65 and 70 dBA as the route approaches Warner Avenue. No sensitive receptors were identified along the connection route with the City of Huntington Beach water supply; however, there are residences along Los Patos Avenue that could potentially be impacted by short-term construction noise. Because of the short length of this pipeline alternative and the lack of sensitive receptors adjacent to the alignment, this alternative would have substantially less construction noise impacts compared to the Proposed Project.

Short-term *construction* noise would be considered adverse, but less than significant (**Class III)**. Potential noise impacts associated with the *operation and maintenance activities* would be similar to the Proposed Project: adverse, but less than significant (**Class III**).

Traffic and Circulation

Impacts of Added Traffic. While the type of impacts due to added traffic would be similar to the Proposed Project alignment, the duration of impacts would be much shorter for this alternative. As with the Proposed Project these impacts would be Class III impacts and no mitigation measures are proposed.

Impacts on Roadway System Capacity. Since this alternative involves the construction of a very short pipeline along the south side of Los Patos Avenue, the roadway capacity-related impacts would be very minor and localized compared to the Proposed Project. A review of this alternative has determined that these impacts would be Class III in nature, and no significant mitigation measures are required.

Impacts on Local Development Access. Since this alternative involves construction of a relatively short pipeline segment along the south side of Los Patos Avenue, the access-related impacts would be very minor and much less significant than the Proposed Project. The evaluation of this alternative indicates that access-related impacts would be Class III in nature, and no mitigation measures are required.

Impacts on Transit Service. This alternative would have no effect on existing transit service.

Impacts on Bicycle and Pedestrian Circulation. This alternative would have no impact on existing bicycle routes. There are no pedestrian crosswalks on the Huntington Beach Water Supply alternative alignment.

Environmental Contamination

This alternative alignment would be bounded by residences on the north and undeveloped open land on the south (the Bolsa Chica Planned Community site). Using the screening criteria in Table C.4-1 and information acquired during a visual site reconnaissance, agency-listed active hazardous waste sites within the study corridor for this alternative water line route were screened based on their potential for environmental impact due to contamination. No sites with high, medium, or low potential for environmental impact due to contamination were identified. Therefore, this alternative has no potential to be affected by known areas of contamination. In addition, due to the substantially shorter length of this water line route, this alternative has substantially less potential than the Proposed Project to encounter undiscovered areas of contamination.

Geology and Soils

This alternative would result in a relatively short segment of pipeline being constructed instead of the proposed SCWC water transmission line (Proposed Project). This alternative is located in an area of low liquefaction potential. However, this alternative does intersect the edge of the Alquist-Priolo zone for the North Branch fault and could be subject to fault rupture and strong ground motion. Implementation of Mitigation Measures G-1 and G-2 would reduce these **Class I** and **Class II** impacts. Since this alternative would eliminate the need to construct the substantially longer pipeline of the Proposed Project, this alternative requires fewer mitigation measures than the Proposed Project.

Hydrology and Water Quality

Surface drainage in the area of this pipeline connection is to Huntington Harbor at the intersection of Warner Avenue and Edgewater Lane. This alternative would result in the construction of a water line that

is substantially shorter than the Proposed Project and would not involve the placement of any structures in the path of a 100-year flood flow.

Construction associated with this alignment would not involve construction north of Heil Avenue. All alignments north of Heil Avenue are likely to encounter shallow groundwater and aquifers with poor water quality. Accordingly, this alternative will not involve any impacts related to dewatering.

Biology

As described above, the proposed connection to the City of Huntington Beach water system would entail a significantly shorter pipeline route than the Proposed Project. The urban development to the north of the installation corridor, and the vegetation disturbance to the south of the alternative corridor make biological impacts minimal. However, this alternative does come closer (within 500 feet) to the Warner Pond than any other alternative or the Proposed Project. Warner Pond has been identified as an Ecologically Significant Habitat Unit by the California Department of Fish and Game (see discussion in the *1996 Recirculated Draft EIR for the Bolsa Chica Report LCP*). The installation of the water line would need to include appropriate Best Management Practices to avoid any hydrological or sediment impacts to this sensitive area. Overall, the shorter pipeline length, in an already disturbed area, decreases the probability of any biological impact in comparison to the other alternatives and the Proposed Project. Biological impacts associated with this alternative are not significant.

Cultural Resources

This alternative has less potential for the discovery of cultural resources during construction because the length of excavation required for pipeline is very short. However, as with other alternatives, the area in the vicinity of the connection between the pipeline and the on-site storage area is an area of high sensitivity and cultural resource impacts can be expected in this area (**Class II**). There will be no impact on site CA-ORA-83/86/144. Overall, the impacts associated with this alternative are less than for other alternatives. The mitigation measures recommended for the Proposed Project would need to apply to this alternative.

Land Use and Recreation

This alternative would induce the least land use impacts of all the alternatives. The pipeline could be aligned within the boundaries of the Bolsa Chica Planning Community site and therefore, access problems for adjacent land uses would be minimal. There would be no impacts on recreation facilities.

Public Services and Utilities

This route alternative is by far the shortest alignment among the alternatives and would not cause any significant impacts to public services or utilities. The pipeline could be aligned from the connection point at the intersection of Warner and Los Patos to within the boundaries of the Bolsa Chica Planning

Community site, which would reduce the likelihood of potential impacts associated with street construction (e.g., blocked emergency service provider access, existing utility disruption) compared to the Proposed Project. Therefore, impacts to public services and utilities associated with construction activities would be substantially reduced compared to construction of the Proposed Project.

D.4.2 ALTERNATIVE 2: ANAHEIM–BARBER CITY CHANNEL DIAGONAL (RANCHO ROAD)

As described in Section D.2.2, this alternative would connect to the SCWC system further east on Orangewood Avenue at Holder Street. From the point of connection at Orangewood Avenue and Holder Street, the pipeline would head south along Holder Street/Springdale Street to the intersection of Springdale Street and Meinhardt Road. South of Meinhardt Road, the pipeline would cross the Anaheim–Barber City Channel and travel southwest along the southern maintenance road adjacent to the channel before utilizing the space between the Channel and Rancho Road. The pipeline alignment turns south at the intersection of Rancho Road and Bolsa Chica Street and continues south as proposed in the northbound lanes of Bolsa Chica Street to Los Patos Avenue where the alignment turns west before terminating at the proposed underground reservoir on Bolsa Chica Mesa. The impacts of this alternative in comparison to the Proposed Project are discussed below.

Air Quality

Because this alternative route is slightly longer (0.3 miles longer) than the Proposed Project, it is assumed that the construction emissions for this alternative would be approximately 5% higher than the emissions estimated for the Proposed Project. The estimated maximum daily and quarterly emissions associated with construction of the pipeline would exceed the SCAQMD's significance threshold for NOx (100 lbs/day and 2.5 tons/quarter), resulting in a potentially significant impact. The NOx emissions could be reduced through the implementation of Mitigation Measures A-1 through A-9 (see Section C.1). However, the residual NOx emissions would still be above the SCAQMD's daily and quarterly thresholds of significance, representing a short-term air quality impact (**Class I**).

It should be noted that the other pollutants (VOC, SOx, CO, and PM_{10z}) are all below the SCAQMD emission thresholds for construction. As a result, these pollutant emission levels would be considered adverse, but less than significant (**Class III**).

The air quality impacts associated with the operation and maintenance activities would also be very similar to the Proposed Project. Operational emissions would be adverse, but less than significant (**Class III**).

Noise

Recorded ambient levels along this route range between 59 and 67 dBA (see Table D.4-1). Residences and eight sensitive receptors consisting of parks, schools, daycare centers are located adjacent to the alternative route alignment (see Table D.4-2). Short-term construction noise could potentially impact these residences and sensitive receptors; however, these construction noise levels would not result in significant impacts. Because there are considerably more (six additional) sensitive receptors along this

alternative route compared to the Proposed Project route, the Proposed Route would have fewer noise related impacts than the Anaheim–Barber City Channel Diagonal Alternative Route. Short-term construction noise would be considered adverse, but mitigable (**Class II**) and would require the same mitigation as the Proposed Project (see mitigation measures N-1, N-2 and N-3). Potential noise impacts associated with the operation and maintenance activities would be similar to the Proposed Project. Operational noise levels would be adverse, but less than significant (**Class III**).

Table D.4-1 Measured Ambient Noise Levels [1] along the Anaheim–Barber City Channel Diagonal Alternative Route

# [2]	Description	Survey Time	Leq	Max	Min	Key Information
10	East side of Holder St. at Biak St.	10:10 a.m.	63.1	82.3	40.7	Location is adjacent to Hettinga Manzanita Park. Low traffic levels were noted on Holder St.
11	East side of Springdale St., north of Lampson Ave.	10:34 a.m.	59.2	76.7	42.9	Location is located between Bell Intermediate School and John Enders School. Children were noted playing in the schoolyards of both schools.
12	East side of Springdale St., south of Stanford Ave.	11:00 a.m.	61.2	80.8	45.6	Location is adjacent to Rossier Elementary School. Moderate traffic was noted on Springdale Ave.
13	Corner of Springdale and Iroquois Road	11.25 a.m.	65.9	81.6	50.4	Location is approximately 150 ft.
14	Rancho Road and Spa Drive	12:15 p.m.	67.0	79.7	50.4	Measurement was taken on the northwest side of Rancho Road, east of Spa Drive.
In addition to sample locations 10 through 14, locations 6 through 8 along the Proposed Route (see Table C.2-2) are representative of the Anaheim -Barber City Diagonal (Rancho Road) Alternative Route.						

1) All measurements are in dBA
   L_{eq}= Equivalent Sound Level, a measurement (in this case 20 minutes) that accounts for the moment-to-moment fluctuations due to all sound sources during the measurement period, combined.
   L_{max}= The maximum sound level reached during a sampling period
   L_{min}= The minimum sound level reached during a sampling period
2) See Figure C.2-3 for location of these sample/monitoring sites.

Table D.4-2 Sensitive Receptors Along Anaheim–Barber City Channel Diagonal Alternative Route

# [1]	Sensitive Receptor	Jurisdiction	Location Description
4	Hettinga Manzanita Park	Cypress	Holder St. and Biak St.
5	John Enders School	Garden Grove	East side of Springdale St., south of Bellgrave Ave.
6	Bell Intermediate School	Garden Grove	West side of Springdale St., south of Bellgrave Ave.
7	Childtime Children Center	Garden Grove	West side of Springdale St., north of Lampson Ave.
8	Loyal H. Barker Elementary School	Garden Grove	West side of Springdale St., south of Lampson Ave.
9	Rossier Elementary School	Garden Grove	Stanford Ave. and Springdale Ave.
10	Sequoia Elementary School	Garden Grove	Iroquois Rd., west of Springdale Ave.
11	Virginia K. Boos Park	Westminster	Hampton Place, west of the Anaheim Barber City Channel.

1) See Figure C.2-3 for locations of these sensitive receptor sites.

Traffic and Circulation

Impacts of Added Traffic. The impact of added traffic due to this alternative would be essentially the same as that discussed for the Proposed Project alignment. As with the Proposed Project, these impacts would be Class III impacts and no mitigation measures are proposed.

Impacts on Roadway System Capacity. South of Rancho Road, this route alternative has the same routing as the Proposed Project. North of I-405, the pipeline routing for this alternative follows Springdale Street and Holder Street to Orangewood Avenue (and is identical to the Alternative 3 alignment).

The segment on Rancho Road between Springdale Street and Bolsa Chica Street is the only unique segment which does not occur in any other alternative. Impacts of this alternative on roadway capacity would be comparable to the Proposed Project. While the capacity impacts would likely be less severe on Rancho Road, due to lower traffic volumes, the slightly longer route and the resulting lengthier construction schedule may offset this.

In the segment north of the I-405, on Springdale and Holder streets, pipeline construction would typically result in the temporary blockage of one travel lane as construction progresses along the route. The impacts on capacity in this segment would be similar to the Proposed Project, although the impacts would be experienced over a longer distance because this alternative uses public streets for a greater distance.

As with the Proposed Project, capacity impacts for this alternative would be Class I in nature and require the same mitigation as the Proposed Project (see Mitigation Measures T-1 and T-2).

Impacts on Local Access. South of Rancho Road, this route alternative has the same routing as the Proposed Project. North of I-405, the pipeline routing for this alternative is identical to the Springdale Street alignment (Alternative 3). The segment on Rancho Road between Springdale Street and Bolsa Chica Street is the only unique segment that does not occur in any other alternative.

Impacts of this alternative on local access would be the same as the Springdale Street alignment (Alternative 3) between Orangewood Avenue and Interstate 405 and the same as the Proposed Project alignment between Rancho Road and the southern project terminus. The unique route segment in this alternative is the diagonal connecting segment along Rancho Road.

Land use on Springdale and Holder Streets north of the I-405 is comprised primarily of residential development which accesses Springdale Street via local or collector street intersections. Between Chapman Avenue and State Route 22, there are three school sites that access Springdale Street via either direct access driveways or intersecting local streets. Two of the schools are located along the west side of Springdale Street and one is on the east side. Between State Route 22 and Interstate 405 there are a few strip commercial centers that are served by driveways onto Springdale Street.

If the pipeline is located in the west half of Springdale Street, approximately 16 driveways would be impacted, while if in the east half, nine driveways would be impacted. Approximately nine local street intersections would be at least partially impacted by the pipeline construction regardless of which side of the street the pipeline is located.

Development along Rancho Road is comprised of residential use along the northwest side and a combination of residential and industrial along the southeast side. The Anaheim-Barber City Channel, abutting the northwest side of Rancho Road, separates residential development from Rancho Road and limits the number of access points.

There are no driveways located along this northwest side of Rancho Road. Approximately 22 driveways exist along the southeast side and most are to residences located northeast of the railroad crossing.

There are five intersecting local/collector streets along Rancho Road. Access impacts along Rancho Road could be minimized significantly if the pipeline was to be routed between the channel and Rancho Road.

The total number of driveways impacted by the combined Springdale Street and Rancho Road segments would range from 8 to 36 depending on its exact placement. This compares to eight impacted driveways along the equivalent segment of the Proposed Project. The total number of local/collector street intersections for the Springdale Street and Rancho Road alignment is approximately 14. This compares to approximately eight access intersections for the Proposed Project.

These comparisons show that the Anaheim-Barber City Channel diagonal alternative would have approximately the same or slightly higher access impacts as the Proposed Project alignment.
As with the Proposed Project, this alternative would result in Class I impacts on many driveway access points along the route and Class II impacts on local/collector street intersections along the route. Mitigation measures would be the same as those identified for the Proposed Project (see Mitigation Measure T-3).

Impacts on Transit Service. On the northern portion of this alignment (i.e. north of the Rancho – Bolsa Chica Road intersection) construction impacts would affect transit routes 60, 164, 56 and 54. The southern segment of this alignment, on Bolsa Chica Street, would have the same impacts on transit as the Proposed Project.

The following describes each bus route that would be impacted by pipeline construction along the northern segment of this alignment.

- OCTA bus route 54 runs east-west along Chapman Avenue in the City of Garden Grove, terminating at Belgrave and Valley View streets. It crosses the proposed Springdale pipeline alignment at Holder Street and Chapman Avenue. Route 54 has headways of 20 minutes in the peak hours and 20-30 minutes in the off-peak hours.

- 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. It crosses the proposed Springdale pipeline alignment at Garden Grove Boulevard and Springdale Street. Route 56 has headways of 30 minutes in the peak and mid-day hours and 60 minutes in the night-time off-peak hours.

- OCTA bus route 60 runs east-west along Westminster Boulevard in the City of Westminster. It crosses the proposed Springdale alignment at Springdale Street and Westminster Boulevard. It also

crosses the Anaheim-Barber City Channel alignment at Rancho Road. Route 60 has headways of 10-15 minutes during the peak hours and 15-30 minutes during the off-peak hours.

- OCTA route 164 runs along Lampson Avenue in Seal Beach, Valley View Street in Garden Grove, Garden Grove Boulevard in Westminster and Edwards Street in Westminster. Route 164 has headways of one hour throughout the day.

The impacts to these bus routes are described below.

Transit service on routes 54, 56, and 60 will be disrupted for a period of three to six days as construction of the pipeline advances across the affected intersections along each bus route. There would be no similar delays on routes 54 or 56 if the Proposed Project alignment were selected. Bus route 60 would also be disrupted for a period of three to six days as construction of the pipeline advances across Warner Avenue. Delays on this route would be substantially the same as for the Proposed Project alignment.

Transit service on Route 164 will be disrupted for a period of three to six days as construction of the pipeline advances across Garden Grove Boulevard. Delays to Route 164 under the Springdale alternative would be similar to delays under the Proposed Project.

Impacts of pipeline construction on bus schedules will be at the Class II level (significant but mitigable). Mitigation measures for this alternative would be as defined in T-4 and T-5 for the Proposed Project.

The southern segment of this alignment, on Bolsa Chica Street, would have the same impacts on transit as the Proposed Project alignment. Impact significance and mitigation measures for the Holder Street/Springdale Street segment would be the same as for the Alternative 3 alignment north of I-405. Impact significance of the Rancho Road segment of this alignment would be at the Class III level (no mitigation required). Impact significance of the Bolsa Chica Street segment of this alignment would be the same as for the Proposed Project.

Impacts on Bicycle and Pedestrian Circulation. The Anaheim-Barber City Channel Alternative (#2) would have no impact on existing bicycle routes.

Pedestrian crosswalks cross the Anaheim-Barber City Channel alignment at the following locations

- Orangewood Avenue
- Santa Barbara Street
- Chapman Avenue
- Belgrave Avenue
- Lampson Avenue
- Stanford Avenue
- Westminster Boulevard
- Bolsa Chica Street.

Similar to the Proposed Project, impacts of pipeline construction on pedestrian crosswalks would be at the Class II level (significant but mitigable). Mitigation measures would be the same as described for the Proposed Project (see Mitigation Measures T-6 and T-7).

Environmental Contamination

The Anaheim-Barber City Channel Diagonal Alternative (#2) traverses predominantly residential neighborhoods. Residences in the area consist of small- to medium-sized single-family homes. Five schools and three daycare centers are located within 1,000 feet of the alignment. One large industrial facility is located adjacent to this alignment. A Boeing Company manufacturing plant is located at the intersection of Rancho Road and Bolsa Chica Street.

Using the screening criteria in Table C.4-1 and information acquired during a visual site reconnaissance, agency-listed active hazardous waste sites within the study corridor for the Anaheim-Barber City Channel Diagonal Alternative pipeline route were screened based on their potential for environmental impact due to contamination. Contaminated sites with potential for environmental impact along this alignment were identified and are presented in Table D.4-3. (Regulatory agency-listed sites requiring no further action and sites ranked as no potential for impact are not presented in the table.) Table D.4-3 lists two hazardous waste sites with potential to cause impacts along the Anaheim-Barber City Channel Diagonal Alternative. These sites are assessed as posing a medium risk of causing environmental impacts. For this alternative, there are fewer contaminated sites posing a lower overall risk of causing environmental impacts than for the Proposed Project (**Class III**).

Table D.4-3 Anaheim-Barber City Channel Diagonal Alternative
Hazardous Waste Sites With Potential to Impact the Project

EDR ID[1]	Site Name	Address	List[2]	Status[3]	Potential to Impact Project	Notes
5	Unocal Service Station	13251 Springdale Street	GEN UST LUST	?Gen Active RA	Medium	Site is currently a vacant lot. Waste oil leak, post-remedial monitoring underway.
13	Boeing Corp./ McDonnell Douglas	5212/5223 Rancho Road	GEN UST LUST	SmGen Active CC	Medium	Very large site occupied by Boeing, portion of property nearest the alignment appears to be used for manufacturing.

Notes:
1) Environmental Data Resources (EDR) Environmental Information Data Site I.D. Number (1999).
2) Regulatory Agency Listing:
   LUST = Leaking Underground Storage Tanks, includes leaking tanks listed under LUST Information System, Cal EPA, CORTESE, and other Local agencies
   UST = Registered Underground Storage Tanks, including tanks listed with state and local agencies
   GEN = Hazardous Waste Generator, includes CORTESE Hazardous Waste Information System Listings and other local agencies
3) Status Codes:
   CC = Case closed, remediation completed or not deemed necessary
   PA = Preliminary assessment underway
   RA = Remedial assessment/action underway
   NR = Status not reported
   Active = Underground Storage Tank in service
   ?Gen = Amount of hazardous waste generated per month not specified
   LgGen = Large Generator generates at least 1000 Kg/month of non-acutely hazardous waste or 1 Kg/month of acutely hazardous waste

Geology and Soils

This alternative segment would replace the northern portion of the Proposed Project route (between Orangewood Avenue to Rancho Road). Geologic impacts for this alternative include potential fault rupture, strong ground shaking, potential liquefaction and lateral spreading, and corrosive soils (**Class II**). Mitigation Measures G-1 through G-4 identified for the Proposed Project would apply to this alternative as well.

Hydrology and Water Quality

Along this alternative pipeline route between the development site and Edinger Avenue drainage is to Sunset Channel (C07), which then drains into Huntington Harbor. From Edinger Avenue to Rancho Road, drainage is to Bolsa Chica Channel (C02). From Rancho Road to the San Diego Freeway (I-405), drainage is to the Anaheim-Barber City Channel (C03). Also, along Springdale Street from the San Diego Freeway to Garden Grove, drainage is to the Anaheim-Barber City Channel (C03). From Garden Grove to the Orangewood feeder along Springdale Street, drainage is to Bolsa Chica Channel (C02).

Impacts to drainage and water quality associated with this alternative would be similar to those described for the Proposed Project. The construction activities could result in contribution to sediment loading in the storm channels or ocean outfalls, but not into wetlands. However, based on the most likely construction scenario, it is unlikely that construction practices will result in a significant contribution to the sediment loading in the subject channels. This impact is thus classified as adverse, but less than significant (**Class III**).

At the Westminster Channel crossing, the pipeline would be located within the 100-year flood flow path. However, it is very unlikely that both (1) 100-year flood flows would occur, and (2) the flood flows would damage the truss of the pipeline. Furthermore, in the event that the pipeline was damaged, the pipeline would be repairable in a short period of time. As a result, this impact would be considered adverse, but less than significant (**Class III**).

During operation of the pipeline, the possibility exists that the pipeline may rupture, disrupting service to the Bolsa Chica Planned Community, as well as eventually saturating and potentially eroding the surrounding soil. As discussed in Section C.6, the potential for this action is very unlikely, and therefore, this impact is considered adverse, but less than significant (**Class III**). It should be noted that there is no potential for pipeline exposure from lateral erosion along storm channels adjacent to this alternative.

This alternative, like the Proposed Project and all other alternatives except for connection to the City of Huntington Beach, involves construction north of Heil Avenue. As a result, construction is likely to encounter shallow groundwater and aquifers with poor water quality. Accordingly, this alternative will have impacts associated with dewatering similar to those for the Proposed Project (**Class III**).

Biology

Urban environment surrounds the alternative corridor to the same extent as the Proposed Project. The urban development limits the wildlife to those that easily adapted to the human presence, and limits the

space available for sensitive plants. The benefit of this alternative is the avoidance of the northern section of the Bolsa Chica Channel near the Seal Beach U.S. Naval Weapons Station where the soft-bottomed channel supports limited riparian vegetation that attracts birds (see Section C.8, Biological Resources). This alternative includes an additional water crossing, the Anaheim-Barber City Channel; however, it is concrete-lined and does not support a biological community. Therefore, this alternative will have no biological impacts.

Cultural Resources

As with the other alternatives and the Proposed Project, this alternative passes through an urbanized environment, utilizing public streets and rights-of-way. This alternative therefore requires a similar amount of excavation as most of the other alternatives and the Proposed Project. This alignment of the pipeline would pass through areas sensitive for prehistoric and historic resources as well as other areas that are less sensitive. The impacts to cultural resources resulting from this alternative are anticipated to be broadly similar to those of the other alternatives and the Proposed Project (**Class II**). The mitigation measures recommended for the Proposed Project would also need to be applied for this alternative.

Land Use and Recreation

This alternative has the advantage of avoiding land use impacts associated with congestion on Bolsa Chica Street north of Rancho Road. While this is desirable, this alternative transfers these problems to Holder and Springdale Streets. This alternative alignment has greater potential for land use impacts because it utilizes more public streets than the Proposed Project alignment and thus exposes more residential and commercial land uses to disruptions associated with pipeline construction. Overall, the impacts associated with this alternative are anticipated to be similar to those associated with the Proposed Project (**Class III**).

The impacts associated with access to and use of recreational resources would be diminished in this alternative because the alignment would be removed from the vicinity of the Naval Base Golf Course at LAAFRC. However, access to Manzanita Park on Holder Street would be temporarily disrupted due to construction. These impacts, although adverse, are not considered to be significant (**Class III**).

Public Services and Utilities

This alternative alignment would not cause significant impacts; however, it is within more public streets than the Proposed Project alignment and thus, the likelihood of potential impacts associated with street construction (e.g., blocked emergency service provider access, existing utility disruption) would be higher compared to the Proposed Project. Therefore, impacts to public services and utilities associated with construction activities would be slightly greater compared to construction of the Proposed Project. The impacts although adverse, are not considered to be significant (**Class III**).

D.4.3 ALTERNATIVE 3: SPRINGDALE STREET/GRAHAM STREET

As described in Section D.2.3, from the point of connection to the Springdale Street/Meinhardt Road intersection, this alternative pipeline route would be the same as Alternative 2 (Anaheim–Barber City Channel Diagonal). South of Meinhardt Road, the pipeline would continue south (in the southbound lanes) along Springdale Street to McFadden Avenue, then west along McFadden Avenue to Graham Street before turning south on Graham Street to Heil Avenue. The alignment would continue west on Heil Avenue to Green Avenue before turning south on Green Avenue to Los Patos Avenue, across Los Patos Avenue to enter the Bolsa Chica Planned Community site. The impacts of this alternative in comparison to the Proposed Project are discussed below.

Air Quality

Because this alternative route is slightly longer (0.9 miles) than the Proposed Project, it is assumed that the construction emissions for this alternative would be approximately 14% higher than the emissions estimated for the Proposed Project. The estimated maximum daily and quarterly emissions associated with construction of the pipeline would exceed the SCAQMD's significance threshold for NOx (100 lbs/day and 2.5 tons/quarter), resulting in a potentially significant impact. The NOx emissions could be reduced through the implementation of Mitigation Measures A-1 through A-9 (see Section C.1). However, the residual NOx emissions would still be above the SCAQMD's daily and quarterly thresholds of significance, representing a short-term (**Class I**) air quality impact.

It should be noted that the other pollutants (VOC, SOx, CO, and PM_{10z}) would be below the SCAQMD emission thresholds for construction. As a result, these pollutant emission levels would be considered adverse, but less than significant (**Class III**).

The air quality impacts associated with the operation and maintenance activities would also be very similar to the Proposed Project. Operational emissions would be adverse, but less than significant (**Class III**).

Noise

Approximate recorded ambient levels along this route range between 57 and 75 dBA (see Table D.4-4). The alternative pipeline route is located in proximity to residential receptors and ten sensitive receptors consisting of parks, schools, a children center, a chapel, and a library (see Table D.4-5). Short-term construction noise could potentially impact these residences and sensitive receptors; however, this alternative would not result in significant impacts. Because there are considerably more (eight additional) sensitive receptors along this alternative route compared to the Proposed Project route, noise impacts associated with construction activities would be greater with this alternative than the Proposed Project. Overall, short-term construction noise levels would be considered adverse, but less than significant (**Class III**).

Table D.4-4 Measured Ambient Noise Levels[1] along the Springdale Street/ Graham Street Route

#[2]	Description	Survey Time	Leq	Max	Min	Key Information
This route is the same as the Rancho Road Alternative Route north of the 405 Freeway. Sample locations 10 through 13 are also representative of Alternative 3.						
15	Corner of Springdale Street and Chinook Avenue	3:20 p.m.	74.9	90.9	52.7	Location is on the southeast corner of Springdale Street and Chinook Avenue.
16	Corner of Product and McFadden Avenue	2:57 p.m.	69.0	81.6	53.4	Measurement was taken on the southwestern corner of Product and McFadden Avenue.
17	Graham Street north of Edinger Avenue.	1:50 p.m.	68.4	86.4	49.3	In front of the Huntington Beach Public Library System – Helen Murphy Branch.
18	Green Street	1:10 p.m.	56.5	78.9	42.2	Location is on the east side of Green Street, approximately 100 south of Pierce Street.

1) All measurements are in dBA
L_{eq}= Equivalent Sound Level, a measurement (in this case 20 minutes) that accounts for the moment-to-moment fluctuations due to all sound sources during the measurement period, combined.
L_{max}= The maximum sound level reached during a sampling period
L_{min}= The minimum sound level reached during a sampling period
2) See Figure C.2-3 for location of these sample/monitoring sites.

Table D.4-5 Sensitive Receptors Along the Springdale Street/Graham Street Route

#[1]	Sensitive Receptor	Jurisdiction	Location Description
In addition to the sensitive receptors listed for the Rancho Road Route (numbers 4 through 10), the Springdale St./Graham St. Route is adjacent to the following sensitive receptors:			
12	Calvary Chapel	Huntington Beach	McFadden Ave. and Product Lane
13	Huntington Beach Public Library	Huntington Beach	Graham St., north of Edinger Ave
14	Wheeler Park	Huntington Beach	Graham St. and Edinger Ave

1) See Figure C.2-3 for locations of these sensitive receptor sites.

Potential noise impacts associated with the operation and maintenance activities would be similar to the Proposed Project. Operational noise levels would be adverse, but less than significant (**Class III**).

Traffic and Circulation

Impacts of Added Traffic. The impact of added traffic due to this alternative would be essentially the same as that discussed for the Proposed Project alignment. As with the Proposed Project, these impacts would be Class III impacts and no mitigation measures are proposed.

Impacts on Roadway System Capacity. The Springdale Street/Graham Street routing alternative has a routing segment common to the Proposed Project south of Heil Avenue. North of the I-405, this alternative assumes an alignment common to the Anaheim-Barber City Channel Diagonal (Alternative # 2). South of the I-405, this alternative follows Springdale Street south, before turning west on McFadden Avenue to Graham Street and then Graham Street south to Heil Avenue. The route then turns west on Heil Avenue to Bolsa Chica Street.
While the exact location of the pipeline has not been defined within the affected streets, it is reasonable to assume that the construction procedures would be similar to those described for the Proposed Project. The

pipeline construction zone would typically result in the temporary blockage of one travel lane as construction progresses along the pipeline route. Springdale Street, McFadden Avenue, Graham Street and Heil Avenue are all four-lane roads with center medians; at least one lane will be blocked at a given time. It should also be noted that this alternative requires a longer distance to be traversed along streets.

All factors considered, this alternative would have a similar level of roadway capacity related impacts as the Proposed Project. The significance of capacity impacts due to this alternative would be Class I, which is the same as evaluated for the Proposed Project. Mitigation Measures T-1 and T-2 identified for the Proposed Project would also apply to this alternative.

Impacts on Local Access. The potential impacts of this alternative on local access would be similar in nature to those identified for the Proposed Project. As the construction of the pipeline progresses along the affected streets, both direct access driveways and local/collector street intersections serving adjacent development will be either blocked entirely or partially blocked.

The access impacts are described for each segment of the alignment below.

Springdale Street - Orangewood Avenue to Interstate 405. See Anaheim-Barber City Channel Diagonal (Alternative #2).

Springdale Street - Interstate 405 to McFadden Avenue. Development adjacent to this segment of Springdale Street is comprised of a mix of residential, industrial/business park, and commercial. There are approximately 17 driveways which are located along the west side of Springdale Street and approximately 13 driveways located along the east side. Approximately 10 local/collector street intersections would be affected along this segment.

McFadden Avenue - Springdale Street to Graham Street. Development adjacent to McFadden Avenue is comprised of industrial and business park uses. Five driveways exist along the north side of the street and six driveways along the south side. Four local/collector street intersections would be affected along this segment.

Graham Street - McFadden Avenue to Heil Avenue. Development adjacent to Graham Street is predominantly industrial/business park north of Edinger Avenue and a mix of commercial and residential south of Edinger Avenue. Approximately ten driveways exist along the west side of Graham Street and seven driveways along the east side. A total of four local/collector street intersections would be affected along this segment.

Heil Avenue - Graham Street to Bolsa Chica Street. Development along Heil Avenue consists of a mix of residential and commercial uses. There are four driveways located along the north side of Heil Avenue and six driveways along the south side. A total of three local/collector street intersections would be affected along this segment.

Route Summary from Orangewood Avenue to Bolsa Chica Street. The total number of driveways which could experience temporary blockages along this segment ranges from 37 to 55. This compares to approximately 22 driveways estimated for the equivalent Proposed Project segment. The total number of local/collector street intersections, which would be partially impacted by this segment of the Springdale Street/Graham Street alternative, is approximately 30. This compares to 13 with the Proposed Project alignment. These comparisons demonstrate that the Springdale Street/Graham Street alternative has a significantly higher impact potential associated with local access disruption.

Although the level of access impacts would be significantly higher with this alternative than with the proposed project, the classification of impacts would be the same. As with the Proposed Project, this alternative would result in Class I impacts on many driveway access points along the route and Class II impacts on local/collector street intersections along the route. Mitigation measures would be as identified for the Proposed Project (see Mitigation Measure T-3).

Impacts on Transit Service. This alternative alignment is crossed by several OCTA bus routes, and one route (64) traverses the alignment itself along Springdale and McFadden Avenue Streets. The bus routes that may be affected by the construction of the pipeline on the Springfield alignment include OCTA routes 54, 56, 60, 64, 70, 72, and 164. The majority of these bus routes cross the Springdale alignment at major intersections such as Chapman Avenue, Westminster Boulevard, and Edinger Avenue. The transit impacts north of the I-405 are the same as those for the Anaheim-Barber City Channel Diagonal (Alternative # 2) due to the common alignment of these alternatives north of the I-405. The impacts on bus routes 54, 56, 60 and 164 are therefore discussed in Section D.4.2. The impacts on bus routes for the remainder of the alignment are discussed below.

The impacts of construction will be typically limited to three to six days in duration as the pipeline construction advances across the impacted intersection. In the case of Route 64, the bus runs along the actual alignment of the pipeline, which would likely result in more substantial impacts to transit service on this route. 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 alighting or disembarking passengers.

The impacts of construction will typically be limited to three to six days in duration as the pipeline construction advances across the impacted intersection. The significance of the impacts on the aforementioned Orange County Transportation Authority (OCTA) bus routes would vary depending on the affected road segment and the service frequency and scheduling of the individual bus routes. For routes which merely cross the pipeline alignment, impacts would be far less than for those which run along the alignment itself. 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 one week. In either case, delays due to lane closures or re-routings may be significant.

The following describes each bus route that would be impacted by pipeline construction along the Springdale Street/Graham Street Alternative alignment:

- 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 along the route of the proposed Springdale alignment between Bolsa Avenue and Springdale Street, and McFadden Avenue and Graham Street. This route has headways of 30 minutes in the peak hours and no off-peak service in the study area.

- OCTA route 70 runs east-west along Edinger Avenue in Huntington Beach. Route 70 crosses the proposed Springdale alignment at Edinger Avenue and Graham Street. Route 70 has headways of 30 minutes during both the peak and off-peak hours.

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

Transit service on Route 64 will be disrupted for a period of approximately 53 working days as construction of the pipeline advances along Springdale Street and McFadden Avenue Street between Bolsa Avenue and Graham Street. Although the route itself will not be blocked, there will be delays as one lane on Springdale Street and McFadden Avenue Street is closed to traffic. Bus stops along Springdale Street and McFadden Avenue may also be inaccessible for periods up to one week as construction of the pipeline advances. There would be no similar impact on Route 64 if the Proposed Project alignment were implemented.

Under this alternative, transit service on Route 70 will be disrupted for a period of three to six days as construction of the pipeline advances across Graham Street. In contrast, under the Proposed Project alternative, the disruption to Route 70 would last approximately one month.

Transit service on route 72 will be disrupted for a period of three to six days as construction of the pipeline advances across the affected intersections along the bus route. Delays on this route would be substantially the same as for the Proposed Project alignment.

Impacts of pipeline construction on bus schedules will be at the **Class II** level (significant but mitigable). Mitigation measures for this alternative would be as defined in T-4 and T-5 for the Proposed Project.

Impacts on Bicycle and Pedestrian Circulation. The bicycle lanes on Springdale Street, McFadden Avenue, Graham Street, and Heil Avenue traverse the route of the Springdale Street/Graham Street Alignment. These lanes may be blocked for a period of one to two months depending on location while the pipeline construction advances along Heil Avenue, Graham Street, McFadden Avenue, and Springdale Street. There would be no similar impact on these bicycle lanes if the pipeline were restricted to the Proposed Project alignment. Another bicycle route that may be affected by pipeline construction on the Springdale Street/Graham Street Alignment is on Edinger Avenue. Edinger has bicycle lanes that cross Graham Street at the location of this alternative alignment. In this case, the impact would last from three to six days while the pipeline construction advances across the intersection of Edinger Avenue and

Graham Street. It will still be possible for bicyclists to travel along the affected street, but the bicycle lanes themselves may be temporarily blocked. The Proposed Project alignment on Bolsa Chica Street would have a similar impact on this bicycle route.

There are a significant number of pedestrian crosswalks which may be affected by pipeline construction on this alternative alignment. Pedestrian crosswalks cross the Springdale Street/Graham Street alignment at the following locations:

- Orangewood Avenue
- Santa Barbara Street
- Chapman Avenue
- Belgrave Avenue
- Lampson Avenue
- Stanford Avenue
- Iroquois Street (south leg only)
- Navajo Street (south leg only)
- Westminster Boulevard
- Crouper Street (south leg only)
- Skylab Road (north leg only)
- Bolsa Avenue
- McFadden Avenue
- Graham Street & McFadden Avenue
- Edinger Avenue
- Meadowlark Street
- Heil Avenue
- Bolsa Chica Street.

In many cases these crosswalks are associated with schools or major intersections, requiring provision for alternative pedestrian crossings at these locations. In all cases where the pedestrian crosswalk is adversely impacted by the construction process, the impact would last from three to six days as pipeline construction advances across the impacted intersection and/or crosswalk. Impacts of pipeline construction on both bike routes and pedestrian crosswalks will be at the **Class II** level (significant but mitigable). Mitigation measures will be the same as described for the Proposed Project (see mitigation measures T-6 and T-7).

Environmental Contamination

Properties along the Springdale Street/Graham Street Alternative are a mix of residential, commercial, and light industrial. The light industrial properties are concentrated along the alignment between Bolsa Avenue and Edinger Avenue. The commercial properties along or near the Springdale Street/Graham Street Alternative are primarily located at intersections with major thoroughfares such as Westminster Boulevard.

Using the screening criteria in Table C.4-1 and information acquired during a visual site reconnaissance, agency listed active hazardous waste sites within the study corridor for the Springdale Street/Graham Street Alternative pipeline route were screened based on their potential to cause environmental impacts due to contamination. Sites with high, medium, or low potential for impact along this alignment are presented in Table D.4-6. (Regulatory agency listed sites requiring no further action and sites ranked as no potential for environmental impact are not presented in the table.) Table D.4-6 lists ten sites along the Springdale Street/Graham Street Alternative with potential for environmental impact due to contamination. Although this alternative poses potentially significant environmental impacts, the alternative poses less risk of impact due to contamination than the Proposed Project.

Table D.4-6 Springdale Street/Graham Street Alternative
Hazardous Waste Sites With Potential to Impact the Project

EDR ID[1]	Site Name	Address	List[2]	Status[3]	Potential to Impact Project	Key Information
2/3	Westminster Shell	5981 Westminster Blvd.	GEN UST LUST	SmGen Active CC	Medium	Site reported to have three gasoline UST's and one diesel UST. Monitoring wells located onsite.
3	Exxon Service Station	6011 Westminster Blvd.	UST LUST	Active CC	Medium	Site now occupied by Jiffy Lube.
3	Chevron # 95401	5992 Westminster Avenue	GEN UST LUST	SmGen Active PA	High	Site reported to have three gasoline UST's and one waste oil UST.
7	Huntington Bch Arco	6002 Bolsa Avenue	GEN UST LUST	?Gen Active PA	High	Site reported to have four gasoline UST's. Monitoring wells noted onsite.
7	Unocal #5123	14972 Springdale Ave.	GEN UST LUST	?Gen Active RA	High	Site is currently a vacant lot with evidence of ongoing remediation.
26/ 45	Weiser Lock/Masco Corp	5555 McFadden Avenue	GEN UST LUST	LgGen Active RA	Medium	Site reported to have six UST's.
33	OPTO 22	15461 Springdale Ave.	GEN	LgGen	Low	
51	Venus Labs	15571 Commerce Lane	GEN UST LUST	?Gen Active PA	Medium	Site reported to have ten fuel UST's and two waste UST's.
86	Unocal #5169	16471 Bolsa Chica Street	GEN UST LUST	?Gen NR PA	High	Active station with monitoring wells noted onsite.
86	Arco Station #1812	16502 Bolsa Chica Street	GEN UST LUST	?Gen Active PA	High	Site reported to have four gasoline UST's and one waste oil UST. Monitoring wells noted onsite.

Notes:
1) Environmental Data Resources (EDR) Environmental Information Data Site I.D. Number (1999).
2) Regulatory Agency Listing:
LUST = Leaking Underground Storage Tanks, includes leaking tanks listed under LUST Information System, Cal EPA, CORTESE, and other Local agencies
UST = Registered Underground Storage Tanks, including tanks listed with state and local agencies
GEN = Hazardous Waste Generator, includes CORTESE Hazardous Waste Information System Listings and other local agencies
3) Status Codes:
CC = Case closed, remediation completed or not deemed necessary
PA = Preliminary assessment underway
RA = Remedial assessment/action underway
NR = Status not reported
Active = Underground Storage Tank in service
?Gen = Amount of hazardous waste generated per month not specified
LgGen = Large Generator generates at least 1000 Kg/month of non-acutely hazardous waste or 1 Kg/month of acutely hazardous waste

Geology and Soils

Geologic impacts along this alternative are the same as for the corresponding segment of the Proposed Project pipeline route, requiring implementation of Mitigation Measures G-1 through G-4.

Hydrology and Water Quality

From the Bolsa Chica Planned Community site to Edinger Avenue (via Green, Heil, and Graham), drainage is to the Sunset Channel (C07), which drains into Huntington Harbor. From Edinger Avenue to McFadden along Graham Street, McFadden Avenue to Springdale Street, and along Springdale Street to Westminster Avenue, drainage is to the Westminster Channel. Along Springdale Street from Westminster Avenue to Garden Grove, drainage is to the Anaheim-Barber City Channel (C03). From Garden Grove to

the Orangewood feeder along Springdale Street, drainage is to Bolsa Chica Channel (C02). All of these channels drain into Huntington Harbour and would not impact into wetlands.

Impacts to drainage and water quality associated with this alternative would be similar to those described for the Proposed Project. The construction activities could result in contribution to sediment loading in the storm channels or ocean outfalls. However, it is unlikely that construction practices will result in a significant contribution to the sediment loading in the subject channels or to Huntington Harbour. This impact is thus classified as adverse, but less than significant **(Class III)**.

At the Westminster Channel crossing, the pipeline would be located within the 100-year flood flow path. However, it is very unlikely that both (1) 100-year flood flows would occur, and (2) the flood flows would damage the truss of the pipeline. Furthermore, in the event that the pipeline was damaged, the pipeline would be repairable in a short period of time. As a result, this impact would be considered adverse, but less than significant **(Class III)**.

During operation of the pipeline, the possibility exists that the pipeline may rupture, disrupting service to the Bolsa Chica Planned Community, as well as eventually saturating and potentially eroding the surrounding soil. As discussed in Section C.6, the potential for this action is very unlikely, and therefore, this impact is considered adverse, but less than significant **(Class III)**. It should be noted that there is no potential for pipeline exposure from lateral erosion along storm channels adjacent to this alternative.

This alternative, like the Proposed Project and all other alternatives except for connection to the City of Huntington Beach, involves construction north of Heil Avenue. As a result, construction is likely to encounter shallow groundwater and aquifers with poor water quality. Accordingly, this alternative will have impacts associated with dewatering similar to those for the Proposed Project (**Class III**).

Biology

This alternative is within the same urban environment as the Anaheim-Barber City Channel Diagonal alternative up to the Springdale Street/Meihardt Road intersection and as such avoids the biologically supportive northern section of Bolsa Chica Channel along the Proposed Project route. This alternative route crosses the Anaheim-Barber City Channel, then travels south, crossing near two undeveloped lots with some shrubs that may support limited urban wildlife, and then enters an intensive industrial area that is not beneficial to biological resources. The route turns west on Heil Avenue which is bordered to the south by the Meadowlark Country Club golf course. Golf courses typically attract ground-dwelling rodents, rabbits, and waterfowl that forage on the lush vegetation supported by the intensive irrigation. This alternative has similar types of biological impacts as the Proposed Project, but the magnitude of impacts may be slightly reduced in comparison due to the partial avoidance of one potentially sensitive area (the Bolsa Chica Channel). No biological impacts are associated with this alternative.

Cultural Resources

As with other alternatives and the Proposed Project, this alternative passes through an urbanized environment, although in this case the alignment utilizes public streets for the entire route. This alternative requires a similar amount of excavation as most other alternatives and the Proposed Project (except for connection to the City of Huntington Beach alternative). As with other alternatives, this alignment of the pipeline would pass through areas sensitive for prehistoric and historic resources as well as other areas that are less sensitive. The impacts to cultural resources resulting from this alternative are anticipated to be broadly similar to those for other alternatives and the Proposed Project (**Class II**). The mitigation measures recommended for the Proposed Project would also need to be applied for this alternative for the entire alignment.

Land Use and Recreation

The land use impacts associated with this alignment are likely to be slightly greater than those of the Proposed Project, but still less than significant (**Class III**). This is because of two factors associated with this alignment: (i) the use of public streets for the entire distance, and (ii) the greater length of the alignment. The alignment therefore has greater potential to pose problems of access during construction for residential, commercial, and industrial land uses.

This alternative alignment would have less impact on recreational resources than the Proposed Project. The alignment would not affect access to, nor use, of the Naval Base Golf Course at LAAFRC, although access to, and use of, two smaller neighborhood parks may be temporarily disrupted (on Graham Street and Orangewood Avenue). Recreation impacts, although adverse, are not therefore considered to be significant (**Class III**).

Public Services and Utilities

This alternative alignment utilizes more public streets than the Proposed Project alignment and thus, the likelihood of potential impacts associated with street construction (e.g., blocked emergency service provider access, existing utility disruption) would be slightly higher compared to the Proposed Project. These impacts are classified the same as the Proposed Project (ranging from **Class II** to **Class III**), although they can be expected to occur with slightly greater frequency with this alternative than for the Proposed Project.

D.4.4 ALTERNATIVE 4: NORTH SEAL BEACH WELLFIELDS

As described in Section D.2.4, this alternative would supply water from the North Seal Beach Wellfields on Lampson Avenue. From the point of connection, the alignment would be laid in an easterly direction along Lampson Avenue to Bolsa Chica Road, before following the Proposed Project route south to the site of the Bolsa Chica Planned Community on the Bolsa Chica Mesa. The impacts of this alternative in comparison to the Proposed Project are discussed below.

Air Quality

Because this alternative route is slightly shorter (0.4 miles less) than the Proposed Project, it is assumed that the construction emissions for this alternative would be approximately 6% lower than the emissions estimated for the Proposed Project. Nevertheless, the estimated maximum daily and quarterly emissions associated with construction of the pipeline would exceed the SCAQMD's significance threshold for NOx (100 lbs/day and 2.5 tons/quarter), resulting in a potentially significant impact. The NOx emissions could be reduced through the implementation of Mitigation Measures A-1 through A-9 (see Section C.1). However, the residual NOx emissions would still be above the SCAQMD's daily and quarterly thresholds of significance, representing a short-term (**Class I**) air quality impact.

It should be noted that the other pollutants (VOC, SOx, CO, and PM_{10z}) are all below the SCAQMD emission thresholds for construction. As a result, these pollutant emission levels would be considered adverse, but less than significant (**Class III**).

The air quality impacts associated with the operation and maintenance activities would also be very similar to the Proposed Project. Operational emissions would be adverse, but less than significant (**Class III**).

Noise

This alternative pipeline route traverses Lampson Avenue for less than a mile before it joins the Proposed Project route at the Bolsa Chica Channel. Ambient noise levels along the route on Lampson Avenue are approximately 70 dBA (see Table D.4-7), one sensitive receptor (a park) is located on Lampson Avenue and Heather Street (see Table D.4-8), and residences back up to Lampson Avenue. Short-term construction noise could potentially impact these residences and the sensitive receptor. Existing noise levels along the Lampson Avenue portion of this alternative are significantly higher than levels along the Proposed Project route north of Lampson Avenue (70 versus 57 dBA, see Tables D.2-1 and C.2-2), and there is one less sensitive receptor and fewer residences adjacent to the alternative in comparison to the Proposed Project. An area with a higher ambient noise level is less susceptible to noise impacts than an area with lower ambient noise levels. Therefore, because the alternative route has a considerably higher ambient noise environment compared to the Proposed Project, noise impacts associated with construction activities would be less adverse with implementation of this alternative in comparison to the Proposed Project. Overall, short-term construction noise levels would be considered adverse, but less than significant (**Class III**). Potential noise impacts associated with the operation and maintenance activities would be similar to the Proposed Project. Operational noise levels would be adverse, but less than significant (**Class III**).

Table D.4-7 Measured Ambient Noise Levels [1] along the North Seal Beach Wellfields Route

# [2]	Description	Survey Time	Leq	Max	Min	Notes
9	South side of Lampson Ave.	1:15 p.m.	70.4	91.7	39.9	The location is adjacent to the north side of

	just east of Heather St.					Heather Park
The North Seal Beach Wellfields Alternative Route joins the Proposed Route at the Bolsa Chica Channel. Sample locations 4 through 8 are also representative of the North Seal Beach Wellfields Alternative Route						

1) All measurements are in dBA
L_{eq}= Equivalent Sound Level, a measurement (in this case 20 minutes) that accounts for the moment-to-moment fluctuations due to all sound sources during the measurement period, combined.
L_{max}= The maximum sound level reached during a sampling period
L_{min}= The minimum sound level reached during a sampling period
2) See Figure C.2-3 for location of these sample/monitoring sites.

Table D.4-8 Sensitive Receptors Along the North Seal Beach Wellfields Route

# [1]	Sensitive Receptor	Jurisdiction	Location Description
3	Heather Park	Seal Beach	Lampson Ave. and Heather St.

1) See Figure C.2-3 for locations of these sensitive receptor sites.

Traffic and Circulation

Impacts of Added Traffic. The impact of added traffic due to this alternative would be essentially the same as that discussed for the Proposed Project alignment. As with the Proposed Project, these impacts would be Class III impacts and no mitigation measures are proposed.

Impacts on Roadway System Capacity. In this alternative, the pipeline would terminate on the north end, near Lampson Avenue. The impacts of this alternative on roadway system capacity would be very similar to the Proposed Project, except that there would be added impacts to the capacity of Lampson Avenue while construction activities progress along this street. The significance of capacity impacts due to this alternative would be **Class I**, which is the same as those evaluated for the Proposed Project. Mitigation Measures T-1 and T-2 identified for the Proposed Project would also apply to this alternative.

Impacts on Local Access. Since this pipeline routing alternative is identical to the Proposed Project south of Lampson Avenue, most of the access impacts would be the same as the Proposed Project. Access impacts identified on Orangewood Avenue for the Proposed Project would be traded off for similar impacts on Lampson Avenue for North Seal Beach Wellfields Alternative. While the access impacts along Lampson Avenue would be somewhat more extensive than those along the affected segment of Orangewood Avenue, the overall access impacts of the two would be similar. As with the Proposed Project, this alternative would result in Class I impacts on many driveway access points along the route and **Class II** impacts on local/collector street intersections along the route. Mitigation measures would be as identified for the Proposed Project (see Mitigation Measure T-3).

Impacts on Transit Service. On the Bolsa Chica Street segment of this alignment, impacts on transit services would be the same as for the Bolsa Chica Street alignment of the Proposed Project south of Lampson Avenue. On the Lampson Avenue segment of this alignment, impact on existing transit service would be at the Class II level—significant but mitigable. OCTA routes 164, 211, and 701 would all be impacted on the portion of their routes traversing Lampson Avenue. Route 164 has headways of one hour throughout the day, while routes 211 and 701 have headways of 30 minutes (peak periods only). Service delays on OCTA routes 164, 211, and 701 would result from the pipeline construction. There would also

be temporary blockages of bus stops along this route, including the Park & Ride lot on Lampson Avenue. The service disruption along Lampson Avenue would last approximately 40 working days. In contrast, the delay to routes 164, 211, and 701 under the Proposed Project would last for only three to six days, and there would be no disruptions of bus stops. Impact significance and mitigation measures for the Bolsa Chica Street segment of this alignment would be the same as for the Alternative 3 alignment south of Lampson. Impact significance on the Lampson Avenue segment of this alignment would be at the **Class II** level (significant but mitigable). Mitigation measures for this alternative would be as defined in T-4 and T-5 for the Proposed Project.

Impacts on Bicycle and Pedestrian Circulation. The bicycle lanes on Lampson Avenue traverse the route of this alternative, as well as crossing over the Proposed Project alignment at the Bolsa Chica Channel, and may be blocked for approximately one month while the pipeline construction advances along Lampson Avenue. There would be no similar impact to Lampson Avenue if the pipeline were restricted to the Proposed Project alignment. This alternative has several pedestrian crosswalks, at Tulip Street/Parkwood Street, Rose Street (west leg only), Heather Street (west leg only), and Basswood Street (west leg only). Provision would need to be made for alternative pedestrian crossing points at all of these locations for this alternative or the Proposed Project. Impacts of pipeline construction on both bike routes and pedestrian crosswalks will be at the Class II level (significant but mitigable). Mitigation measures will be the same as described for the Proposed Project (see Mitigation Measures T-6 and T-7).

Environmental Contamination

This alternative would replace the segment of the Proposed Project route north of Lampson Avenue. This segment of the alternative pipeline route is bounded by the Naval Base Golf Course and Los Alamitos Armed Forces Reserve Center on the north. Properties adjacent to the pipeline route on the south are primarily residential with a few commercial businesses located near the intersection of Lampson Avenue and Manley Street.

Using the screening criteria in Table C.4-1 and information acquired during a visual site reconnaissance, agency-listed active hazardous waste sites within the study corridor for the North Seal Beach Wellfields Alternative pipeline route were screened based on their potential for environmental impact due to contamination. Sites with potential for environmental impact along this alternative are presented in Table D.4-9. (Regulatory agency listed sites requiring no further action and sites ranked as no potential for environmental impact are not presented in the table.) Table D.4-9 lists only one site with potential environmental impact (albeit at the "High" level) to the North Seal Beach Well Fields Alternative. This alternative therefore has far less potential for environmental impact due to contamination than the proposed Project.

Table D.4-9 North Seal Beach Wellfields Alternative
Hazardous Waste Sites With Potential To Impact The Project

EDR ID[1]	Site Name	Address	List[2]	Status[3]	Potential to Impact Project	Notes

4	Arco Station #301	5262 Lampson Avenue	GEN UST LUST	SmGen NR PA	High	Site is currently a vacant lot. Site reported to have 4 gasoline UST's and 1 waste oil UST.

Notes:
3) Environmental Data Resources (EDR) Environmental Information Data Site I.D. Number (1999).
4) Regulatory Agency Listing:
LUST = Leaking Underground Storage Tanks, includes leaking tanks listed under LUST Information System, Cal EPA, CORTESE, and other Local agencies
UST = Registered Underground Storage Tanks, including tanks listed with state and local agencies
GEN = Hazardous Waste Generator, includes CORTESE Hazardous Waste Information System Listings and other local agencies
3) Status Codes:
CC = Case closed, remediation completed or not deemed necessary
PA = Preliminary assessment underway
RA = Remedial assessment/action underway
NR = Status not reported
Active = Underground Storage Tank in service
?Gen = Amount of hazardous waste generated per month not specified
LgGen = Large Generator generates at least 1000 Kg/month of non-acutely hazardous waste or 1 Kg/month of acutely hazardous waste

Geology and Soils

The North Seal Beach Wellfields Alternative would replace the segment of the Proposed Project route north of Lampson Avenue. Geologic impacts along this alternative include potential strong ground shaking, liquefaction, and corrosive soils (**Class II**). Mitigation Measures G-2 through G-4 should be applied to this segment. Because this alternative would not be adjacent to the Bolsa Chica Channel north of Lampson Avenue, there would be less likelihood of lateral spreading near the Bolsa Chica Channel levees than the Proposed Project (**Class III**).

Hydrology and Water Quality

Along this alternative pipeline route, drainage along the southern portion of Bolsa Chica Road (between the development site and Edinger Road) is to Sunset Channel (C07), which drains into Huntington Harbor. Once the pipeline crosses Edinger Road, from Edinger Road to the San Diego Freeway (I-405), drainage in the Bolsa Chica Channel maintenance road is to the Bolsa Chica Channel (C02). North of the San Diego Freeway (I-405), to Lampson Avenue, drainage is also to Bolsa Chica Channel (C02). Along Lampson Avenue, to the North Seal Beach wellfields, drainage is to the Federal Storm Channel (C06). This channel discharges into the ocean via the Los Alamitos Retarding Basin.

Impacts to drainage and water quality associated with this alternative would similar to those described for the Proposed Project. The construction activities could result in contribution to sediment loading in the storm channels or ocean outfalls. However, based on the most likely construction scenario, it is unlikely that construction practices will result in a significant contribution to the sediment loading in the subject channels. This impact is thus classified as adverse, but less than significant **(Class III)**.

At the Westminster Channel crossing, the pipeline would be located within the 100-year flood flow path. However, it is very unlikely that both (1) 100-year flood flows would occur, and (2) the flood flows would damage the truss of the pipeline. Furthermore, in the event that the pipeline was damaged, the

pipeline would be repairable in a short period of time. As a result, this impact would be considered adverse, but less than significant **(Class III)**.

During operation of the pipeline, the possibility exists that the pipeline may rupture, disrupting service to the Bolsa Chica Planned Community, as well as eventually saturating and potentially eroding the surrounding soil. In addition, there is also a potential for pipeline exposure from lateral erosion along the Bolsa Chica Channel (north of I-405). As discussed in Section C.6, these potential two actions are very unlikely, and therefore, these impacts are considered adverse, but less than significant **(Class III)**.

Biology

The North Seal Beach Wellfield is located to the north of residential units, south of agricultural fields, and east of the southern portion of the Los Alamitos Golf Course (the northern portion of this golf course is paralleled by the Proposed Project). The pipeline would travel along Lampson Avenue, with agricultural fields and golf course grounds to the north and residential units to the south, but is overall an urban setting. The fields and golf courses could attract ground-dwelling rodents, rabbits, and resident waterfowl for foraging opportunities. The lack of grouped trees or open water along this portion of the alternative makes the likelihood of adversely affecting sensitive species (e.g., migrating birds) minimal. The distance parallel to a golf course is shorter for this alternative than for the Proposed Project. The Proposed Project and this alternative both turn south at the intersection of Lampson Avenue and Bolsa Chica Road and pass by the Bolsa Chica Channel that, at this point, has a soft-bottom channel with limited riparian vegetation. The biological impacts associated with this alternative are therefore considered to be similar to the Proposed Project (**Class II**).

Cultural Resources

As with the other alternatives and the Proposed Project, this alternative passes through an urbanized environment, utilizing public streets for most of the route. This alternative requires a similar amount of excavation as most other alternatives and the Proposed Project. As with other alternatives, this alignment of the pipeline would pass through areas sensitive for prehistoric and historic resources as well as other areas that are less sensitive. The impacts to cultural resources resulting from this alternative are anticipated to be broadly similar to those for other alternatives and the Proposed Project. The mitigation measures recommended for the Proposed Project would also need to be applied for this alternative for the entire alignment.

Land Use and Recreation

The impacts of this alternative alignment would be very similar to those of the proposed alignment. This alternative utilizes approximately one mile more of public street than the proposed alignment. For this reason, land use impacts might be slightly greater than the Proposed Project. The impacts of this alternative alignment on recreation resources would be similar to the proposed alignment.

Public Services and Utilities

From the point of connection, the alignment would be laid in an easterly direction along Lampson Avenue to Bolsa Chica Road, then follow the Proposed Project route south to the Bolsa Chica Mesa Planned Community site. This alternative alignment would not cause significant impacts; however, it would involve slightly more street construction compared to the Proposed Project alignment. This would cause greater potential for impacts such as impeded emergency service provider access and disruption to existing utilities. Therefore, impacts associated with construction to public services and utilities would be slightly greater compared to construction of the Proposed Project.

D.4.5 NO PROJECT ALTERNATIVE

As stated in Section D.3, without the implementation of the Proposed Project, the proponent of the proposed residential development would be forced to find an alternative water supply for its project. There are several alternative sources for water for the proposed Bolsa Chica Planned Community Project, including water service from a nearby city (see Alternative 1) or connection to another water source (see Alternative 4). The developer could even pursue various alternatives not examined in detail in this EIR (see alternatives eliminated from further consideration in Section D.1.4). [Note: For alternatives involving the provision of water services by municipalities, such as the City of Huntington Beach or the City of Seal Beach, no discretionary decisions would need to be made by the CPUC; the CPUC does not regulate municipalities.] The impacts of Alternatives 1 and 4 are discussed in Sections D.4.1 and D.4.4, preceding; however, the potential impacts associated with other alternative water sources that could be pursued by the developer are not specifically known.

Notwithstanding the potential impacts of an alternative water supply scheme, the impacts associated with the Proposed Project described in Section C would not occur under the No Project Alternative. This primarily means that the various air quality, noise, traffic, and other impacts associated with the construction of the proposed water line would not occur.

D.5 CONCLUSION

Of the project alternatives selected for evaluation, only Alternative 1 (Connection to the City of Huntington Beach Water System) would result in impacts that are substantially less than those of the Proposed Project. The other project alternatives (Alternatives 2, 3, and 4) would require construction of a pipeline similar in length to that of the Proposed Project. As a result, the environmental impacts associated with these alternatives are similar to each other and to the Proposed Project, although the impacts do vary somewhat in magnitude. The basic impacts shared by Alternatives 2, 3, and 4 include disruption of local traffic due to construction activities in public streets, air quality and noise impacts from construction, and various other construction-related effects. By contrast, Alternative 1 involves construction of only about one-third of a mile of pipeline to provide a connection to a water source, and most of this construction could take place outside the rights-of-way of public streets. The reader should note, however, that connection to the City of Huntington Beach water system could also involve various upgrades to the City's local water infrastructure as described in Section D.2.1. However, even with

additional improvements to the City's local water system, the environmental impacts of Alternative 1 would be substantially less than those of the other project alternatives and the Proposed Project. Therefore, Alternative 1 is considered the environmentally superior alternative.

Table D.5-1, on the following page, has been prepared to provide the reader with a comparison of the significance of impacts of the Proposed Project and each of the project alternatives. Table D.5-2 provides a summary description of the impacts of the Proposed Project and the alternatives.

D.6 REFERENCE

Department of the Navy. 1999. *Correspondence from James H. Strotman, Department of the Navy to Mr. Kelly Nolan, IWA Engineers*. March 10.

COHB (City of Huntington Beach). 1999. *City of Huntington Beach's Reply Brief before the Public Utilities Commission – Testimony in relation to Application No. 9811015 and 9811003*. California Public Utilities Commission.

Table D.5-1 Impact Significance of Alternatives

Issue Area	Impact	Proposed Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
		Classification				
Air Quality	NOx emissions from construction	I	III	I	I	I
	VOC, SOx, CO, and PM10 emissions from construction	III	III	III	III	III
	Operational emissions	III	III	III	III	III
Noise	Disturbance to adjacent land uses due to construction noise	II	II	II	II	II
	Disturbance to adjacent land uses due to operation and maintenance	III	III	III	III	III
Traffic	Traffic added to local streets by construction vehicles	III	III	III	III	III
	Temporary reduction in service levels on local streets and intersections during construction	I	III	I	I	I
	Temporary blockage of vehicular access to properties during construction	I/II	III	I/II	I/II	I/II
	Temporary disruptions to bus routes during construction	II	No impact	II	II	II
	Temporary disruption to pedestrian and bicycle circulation during construction	II	III	II	II	II
Environmental Contamination	Presence of hazardous wastes along the pipeline route	II	No impact	III	II	III
	Risk of contamination from unknown contaminants	II	II	II	II	II
Geology and Soils	Potential rupture of pipeline due to fault movement	I	I	I	I	I
	Potential pipeline rupture due to strong ground shaking induced by a large event on the Newport-Inglewood fault.	II	II	II	II	II
	Potential pipeline rupture due to liquefaction, lateral spreading, and differential settlement	II	III	II	II	III
	Damage to the pipeline from corrosive soils	II	II	II	II	II
Hydrology and Water Quality	Increased sediment transported to drainage channels during construction	III	III	III	III	III
	Risk of pipeline damage by a 100-year flood event	III	III	III	III	III
	Risk of pipeline leak or rupture during operation	III	III	III	III	III
Cultural Resources	Disturbance to prehistoric and historic resources during pipeline construction	II	II	II	II	II
	Impact to site CA-ORA-83/86/144	II	No impact	II	II	II
	Impact to areas peripheral to those identified as CA-ORA-84 and –85 (and –288)	II	II	II	II	II
	Potential impact to prehistoric resources at the reservoir site	II	II	II	II	II

Issue Area	Impact	Proposed Project	Alt. 1	Alt. 2	Alt. 3	Alt. 4
		Classification				
Biological Resources	Potential disturbance to nesting migratory birds near Old Bolsa Chica Road.	II	No impact	No impact	No impact	II
Land Use and Recreation	Disruption to adjacent land uses during construction	III	III	III	III	III
	Temporary interference to access to parks	III	No impact	III	III	III
	Temporary interference to access to Naval Base Golf Course	III	No impact	No impact	No impact	No impact
Public Services and Utilities	Emergency access could be blocked or impeded by pipeline construction	II	III	II	II	II
	Increased commute time to schools due to increased congestion during construction	III	III	III	III	III
	Potential disruption to emergency services during pipeline and maintenance	III	III	III	III	III
	Potential utility disruption during construction	III	III	III	III	III
	Accidental damage to buried utility lines during trenching	III	III	III	III	III

Table D.5-2 Comparison of Alternatives

Proposed Project	Alternative 1 – Connection to Huntington Beach	Alternative 2 - Anaheim–Barber City Channel Diagonal	Alternative 3 - Springdale Street/Graham Street	Alternative 4 - North Seal Beach Wellfields	No Project Alternative
Air Quality					
Construction Emissions lbs/day tons/qtr VOC 26.51 0.84 NOx 177.42 5.61 SOx 15.00 0.44 CO 203.14 6.54 PM10 58.82 1.90 **Operational Emissions** Emissions would be minimal.	**Construction Emissions** Emission levels would be approximately 5 to 10% of what would be generated for the Proposed Project. **Operational Emissions** Emissions would be minimal	**Construction Emissions** Emission levels would be approximately 5% higher than the Proposed Project. **Operational Emissions** Emissions would be minimal	**Construction Emissions** Emission levels would be approximately 14% higher than the Proposed Project. **Operational Emissions** Emissions would be minimal	**Construction Emissions** Emission levels would be approximately 6% lower than the Proposed Project. **Operational Emissions** Emissions would be minimal	**Construction Emissions** No construction emissions would be generated **Operational Emissions** Emissions would be minimal
Noise					
Construction Impacts No. of sensitive receptors that would be affected = 2 **Operational Impacts** Impacts would be minimal	**Construction Impacts** No sensitive receptors would be impacted; impacts would be substantially reduced **Operational Impacts** Impacts would be minimal	**Construction Impacts** 8 sensitive receptors would be affected; impacts would be greater **Operational Impacts** Impacts would be minimal	**Construction Impacts** 10 sensitive receptors would be affected; impacts would be greater **Operational Impacts** Impacts would be minimal	**Construction Impacts** 1 sensitive receptor would be affected; impacts would be reduced **Operational Impacts** Impacts would be minimal	**Construction Impacts** No construction Impacts would occur **Operational Impacts** No operational impacts would occur
Traffic and Circulation					
Construction Impacts Added Traffic – Traffic related to project construction (vehicles & trucks) would not adversely impact roadway volumes. LOS–loss of roadway/intersection capacity related to construction (roadway blockages) is substantial and service levels would be adversely impacted. Access Blockage – 16 local /collector intersections and 45 access driveways would be blocked at some point during construction.	**Construction Impacts** Added Traffic - Similar to the Proposed Project LOS – roadway capacity related impacts would be very minor due to the very short pipeline length. Very minor and localized in comparison to the Proposed Project. Access Blockage – The short distance would result in very minor impacts; much less substantial in comparison to the Proposed Project. Transit Service – No effect on existing transit service.	**Construction Impacts** Added Traffic - Similar to the Proposed Project LOS – Capacity impacts would be less severe on Springdale and Rancho Road due to lower traffic volumes, however, offset by longer route. Overall, similar to Proposed Project. Access Blockage– up to 24 additional local /collectors and an additional 6 access driveways would be impacted in comparison to the Proposed Project. Transit Service – Would be	**Construction Impacts** Added Traffic - Similar to the Proposed Project LOS – Capacity impacts would be less severe on Springdale, McFadden, Graham, and Heil due to lower traffic volumes, however, offset by longer route. Overall, similar to Proposed Project. Access Blockage –17 additional local/collectors and an additional 15 to 33 access driveways would be impacted in comparison to the Proposed Project.	**Construction Impacts** Added Traffic - Similar to the Proposed Project LOS – Capacity impacts would be very similar to Proposed Project. However, slightly shorter in distance. Access Blockage – Similar to Proposed Project. Transit Service – Similar to Proposed Project. However, this alternative would impact an additional 3 bus routes along Lampson Avenue. Bike/Pedestrian Cir. - Similar to Proposed Project.	**Construction Impacts** None

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Transit Service- 6 bus routes would be affected by the construction of the pipeline. Bike and Pedestrian Circulation -1 bike route runs parallel along the route as well as 4 bike lanes and 10 crosswalks cross the route. These routes and crosswalks would be impacted by construction. **Operational Impacts** None	Bike/Pedestrian Cir. – No impact on bike or pedestrian pathways. **Operational Impacts** None	very similar to the Graham/ Springdale Alternative between POC and Rancho Rd and similar to Proposed Project between Rancho Rd. and the Mesa. Bike/Pedestrian Cir. – Would be very similar to the Graham/ Springdale Alternative between POC and Rancho Rd and similar to Proposed Project between Rancho Rd. and the Mesa. **Operational Impacts** None	Transit Service – 7 bus routes would be affected by the construction of the pipeline. Bike/Pedestrian Cir. – A total of 5 bike paths and 19 pedestrian crosswalks would be impacted. **Operational Impacts** None	However, this alternative would impact additional pathways along Lampson Avenue. **Operational Impacts** None	**Operational Impacts** None
Environmental Contamination					
Construction Impacts 14 sites with hazardous wastes have been identified along the alignment; potential exposure of workers and the public to undiscovered contaminated soil during construction. **Operational Impacts** There could be a beneficial impact from clean up of existing contamination.	**Construction Impacts** Alternative does not pass any known areas of contamination and due to shorter length there is substantially less potential for discovery of unknown areas of contamination. No Impacts. **Operational Impacts** None	**Construction Impacts** Alternative passes only two sites of known contamination and the environmental risks are therefore lower than for the Proposed Project. Similar potential for discovery of unknown contaminants. The impacts of this alternative a lower than the Proposed Project. **Operational Impacts** None	**Construction Impacts** Alternative passes ten sites of known contamination and the environmental risks are therefore slightly lower than for the Proposed Project. Similar potential for discovery of unknown contaminants. The impacts of this alternative are marginally lower than the Proposed Project. **Operational Impacts** None	**Construction Impacts** Alternative passes only one site of known contamination and the environmental risks are therefore lower than for the Proposed Project. Similar potential for discovery of unknown contaminants. The impacts of this alternative are lower than the Proposed Project. **Operational Impacts** None	**Construction Impacts** No Construction Impacts would occur **Operational Impacts** No operational impacts would occur
Geology and Soils					

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Construction Impacts No impacts. **Operational Impacts** Environmental risks associated with (i) rupture from earthquake, (ii) strong ground shaking; (iii) liquefaction; and (iv) corrosive soils. All of these risks represent potentially significant but mitigable impacts.	**Construction Impacts** No impacts. **Operational Impacts** The risks associated with this alternative are similar to the Proposed Project.	**Construction Impacts** No impacts. **Operational Impacts** The risks associated with this alternative are similar to the Proposed Project.	**Construction Impacts** No impacts. **Operational Impacts** The risks associated with this alternative are similar to the Proposed Project.	**Construction Impacts** No impacts. **Operational Impacts** The risks associated with this alternative are similar to the Proposed Project.	**Construction Impacts** No impacts. **Operational Impacts** No Impacts.
Hydrology and Water Quality					
Construction Impacts Minimal sediment loading in storm channels or ocean outfalls. **Operational Impacts** The pipeline would be within the 100-year flood zone at channel crossing Potential pipeline rupture would disrupt service, as well as potentially erode soil near the pipeline. Potential for pipeline exposure from lateral erosion along adjacent channels.	**Construction Impacts** Similar to Proposed Project **Operational Impacts** Pipeline would not be within a 100-year flood zone Similar to the Proposed Project No potential for pipeline exposure from lateral erosion along adjacent channels	**Construction Impacts** Similar to Proposed Project **Operational Impacts** Similar to the Proposed Project Similar to the Proposed Project No potential for pipeline exposure from lateral erosion along adjacent channels	**Construction Impacts** Similar to Proposed Project **Operational Impacts** Similar to the Proposed Project Similar to the Proposed Project No potential for pipeline exposure from lateral erosion along adjacent channels	**Construction Impacts** Similar to Proposed Project **Operational Impacts** Similar to the Proposed Project Similar to the Proposed Project Similar to the Proposed Project	**Construction Impacts** No Impacts **Operational Impacts** No Impacts
Cultural Resources					
Construction Impacts Moderate to high potential for impact on cultural resources during construction; potential impacts on cultural resources at point of connection to reservoir and at reservoir site.	**Construction Impacts** Alternative will avoid impacts to site CA-ORA-83/86/144; shorter pipeline reduces potential for impact on cultural resources during construction; potential to impact other cultural resources at the point of connection to reservoir is	**Construction Impacts** Alternative will have similar impacts to the Proposed Project.	**Construction Impacts** Alternative will have similar impacts to the Proposed Project.	**Construction Impacts** Alternative will have similar impacts to the Proposed Project.	**Construction Impacts** No Impacts

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	similar to the Proposed Project.				
Operational Impacts none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none
Biological Resources					
Construction Impacts Potential disturbance to sensitive plant and wildlife species during pipeline construction on the mesa, potential disturbance of migrating birds using the Bolsa Chica Channel at Old Bolsa Chica Rd.	**Construction Impacts** Alternative avoids Bolsa Chica Channel at Bolsa Chica Road and eliminates any potential disturbance to birds using the area. Potential impacts substantially reduced.	**Construction Impacts** Alternative avoids Bolsa Chica Channel at Bolsa Chica Road and eliminates any potential disturbance to birds using the area. Potential impacts substantially reduced.	**Construction Impacts** Alternative avoids Bolsa Chica Channel at Bolsa Chica Road and eliminates any potential disturbance to birds using the area. Potential impacts substantially reduced.	**Construction Impacts** Alternative's impacts are the same as the Proposed Project	**Construction Impacts** Alternative avoids all potential impacts to sensitive biological resources on the mesa and at Bolsa Chica Channel at Bolsa Chica Road and eliminates any potential disturbance to birds using the area.
Operational Impacts none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none
Land Use and Recreation					
Construction Impacts Short-term disruption and associated inconvenience to residents, workers and others seeking access to residential, commercial and industrial uses. Minor impacts to access and use of one park and the LAAFRC Golf Course	**Construction Impacts** Minimal land use impacts; no impacts on recreational facilities.	**Construction Impacts** Alternative has greater potential impacts because it uses public streets for a greater distance. Recreation impacts on LAAFRC Golf Course are avoided; some impacts on Manzanita Park.	**Construction Impacts** Alternative will induce greater land use impacts because (i) it is longer and (ii) it uses public streets for the entire length. Recreation impacts on LAAFRC impacts are avoided; access to two small parks will be affected.	**Construction Impacts** Alternative uses one mile more of public street than Proposed Project; land use impacts slightly greater. Recreation impacts similar to Proposed Alignment.	**Construction Impacts** none
Operational Impacts none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none	**Operational Impacts** none
Public Services and Utilities					
Construction Impacts Emergency service provider blocked access; increased commute time for schools; disruptions to utilities during construction activities.	**Construction Impacts** Less construction within roadways would be required, impacts would be substantially reduced	**Construction Impacts** More construction within roadways would be required, impacts would be greater	**Construction Impacts** More construction within roadways would be required, impacts would be greater	**Construction Impacts** Slightly more construction within roadways would be required, impacts would be slightly greater	**Construction Impacts** No Construction Impacts would occur
Operational Impacts Repairs to ruptures within roadways could block	**Operational Impacts** Less of the pipe would be	**Operational Impacts** More of the pipe would be within roadways, impacts	**Operational Impacts** More of the pipe would be within roadways, impacts	**Operational Impacts** Slightly more of the pipe	**Operational Impacts** No operational impacts

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emergency service providers	within roadways, impacts would be substantially reduced	would be greater	would be greater	would be within roadways, impacts would be slightly greater	would occur