3.0 ALTERNATIVES

3.1 FACTORS USED IN THE SELECTION OF ALTERNATIVES

3.1.1 Alternatives Development and Screening Process

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that could potentially avoid or minimize the impacts of a proposed project.

Both the NEPA and the State CEQA Guidelines emphasize the need for an evaluation of a range of alternatives. NEPA requires that Federal agencies rigorously explore and objectively evaluate all reasonable alternatives to a proposed action in order to provide a clear basis for choice among options by the decision-makers and the public (Title 40 CFR Part 15012.14). The State CEQA Guidelines (section 15126.6[d]) emphasize the selection of a reasonable range of feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis for consideration by decision-makers.

Consistent with the CEQ and the CEQA requirements and Guidelines, the Agency Staffs considered 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.[1]

3.1.2 Alternatives Screening Methodology

The stated objectives of the proposed Project are described in Section 1.1. The main objectives include: (1) providing transportation capacity of up to 2,932,000 Dthd (2,753 MMscfd) of natural gas entering the continent at LNG terminals (either planned or under construction) in Baja California to delivery points in California and Arizona; (2) delivering up to 120,000 Dthd (113 MMscfd) of natural gas to the Blythe Energy Facility I supply pipeline; and (3) providing up to 110,000 Dthd (103 MMscfd) of natural gas to the IID.

Alternatives to the proposed Project were identified and selected based on information from North Baja and other sources, and through analyses conducted by the EIS/EIR preparers. The screening process that was followed for each alternative consisted of three steps:

1. Defining alternatives to allow comparative evaluation.

2. Evaluating each alternative in the context of one or more of the following criteria:

   - the extent to which the alternative would accomplish most of the basic goals and objectives of the Project;

   - the extent to which the alternative would avoid or lessen one or more of the identified significant environmental impacts of the Project;

[1] The review of alternatives in this EIS/EIR does not include alternatives that cannot be reasonably ascertained or alternatives for which potential implementation is remote or speculative because a review of these types of alternatives is not required by Federal and State Guidelines.

- the potential feasibility of the alternative, taking into account site suitability, economic viability, availability of infrastructure, and consistency with applicable plans and regulatory limitations;

- the appropriateness of the alternative in contributing to a "reasonable range" of alternatives necessary to permit a reasoned choice;

- the requirement of the CEQ and the State CEQA Guidelines to consider a "No Project" alternative;

- and the requirement of the State CEQA Guidelines to identify an "Environmentally Superior" alternative (section 15126.6[e]).

3. Determining the suitability of the proposed alternative for full analysis in the EIS/EIR. If the alternative was unsuitable, the Agency Staffs eliminated it, with appropriate justification, from further consideration.

In the final phase of the screening analysis, the environmental advantages and disadvantages of the reasonable alternatives were carefully weighed with respect to potential for overall environmental advantage, technical feasibility, and consistency with Project and public objectives. The ability of an alternative to provide the proposed volumes in the same general time frame as the proposed Project was included in this consideration.

For the screening analysis, the technical and regulatory feasibility of various potential alternatives was assessed at a general level. At the screening stage, it is not possible to evaluate potential impacts of the alternatives or the proposed Project with absolute certainty. However, it is possible to identify elements of the proposed Project that are likely to be the sources of impact. The Agency Staffs' assessment of feasibility was directed toward reverse reason, that is, the Agency Staffs attempted to identify anything about the alternative that would be infeasible on technical or regulatory grounds. If during the screening analysis an alternative proved to be infeasible or clearly did not provide any environmental advantages compared to the proposed Project, it was eliminated from further consideration.

3.1.3 Summary of Screening Results

The Agency Staffs reviewed several potential alternatives including the No Project Alternative, system alternatives, route alternatives, route variations, alternative delivery points, and aboveground facility alternatives using the screening criteria listed above. The Agency Staffs eliminated a number of these alternatives because they did not provide any clear environmental advantage. The Agency Staffs eliminated other alternatives because they did not meet the stated Project objectives of transporting LNG-source gas from LNG terminals in Baja California to U.S. delivery points, specifically to customers in southern California and the Southwest. The following sections discuss and analyze each of the alternatives evaluated in sufficient detail to explain why they were eliminated from further consideration or retained for analysis in Section 4 of this EIS/EIR.

3.2 ALTERNATIVES CONSIDERED

3.2.1 No Project Alternative

The actions triggering this environmental review were North Baja's applications to the FERC for a Certificate and to the CSLC for an amendment to its permit to cross State lands. This environmental review will also satisfy the NEPA responsibilities of the BLM in considering North Baja's application to

amend its existing Right-of-Way Grant and obtain a Temporary Use Permit for the portion of the Project on Federal lands, including lands managed by the BOR and the FWS. The FERC, the CSLC, and the BLM have two courses of action in considering the proposed Project. They may: (1) deny the respective applications; or (2) approve the Project with or without conditions.

If the Project is denied, none of the potential environmental impacts (both positive and negative) identified in this EIS/EIR would occur. However, the objectives of the Project as described in Section 1.1 would not be met. Specifically, this means that North Baja would not be able to provide transportation for LNG-source natural gas from the Mexican pipeline system into the United States to meet the demand for natural gas in California and other southwestern U.S. markets.

To understand the potential effects of the No Project Alternative, it is important to understand the source and use of natural gas in California. As discussed in detail in Section 1.1, the State of California is the second largest natural gas consumer in the nation. In 2003, Californians consumed about 2.2 trillion cubic feet of gas. In-State production of natural gas satisfies only about 13 percent of Statewide demand (CEC 2005b). The remaining natural gas that is consumed in the State comes primarily from five major out-of-State production basins.

The demand for natural gas in California, as in the rest of the United States, is expanding, and gas producers across North America are struggling to keep pace with the growing demand. Production from most of the mature supply basins in North America has declined or only increased modestly since 1990. The amount of gas produced per well is also declining, and each well is being drained faster (CEC 2005a). The result is that domestic natural gas production is not projected to keep up with the growth in demand.

California's supply of natural gas is also affected by rising demand for natural gas in neighboring states. Forty-three new power plants have come online in Arizona since 2001. These plants are intermediate load and peaking power plants, which often ramp up quickly to meet changing electricity demand. This may take more natural gas from the pipeline system faster than expected. Under normal circumstances, this practice is not troublesome if the pipeline system can be balanced by taking gas out of storage. In the Phoenix area, however, the nearest storage is hundreds of miles away, and it is becoming increasingly common for pipeline pressure to drop during periods of high demand. If the gas pressure gets low enough, it could cause curtailments that could affect natural gas delivery into California (CEC 2005a).

Although it is speculative to predict the actions that could be taken by other suppliers or users of natural gas in the region as well as the resulting effects of those actions if the proposed Project applications are denied, southern Californian customers would likely have fewer and potentially more expensive options for obtaining natural gas supplies in the near future. This might lead to alternative proposals to develop natural gas delivery or storage infrastructure, reduced use of natural gas, and/or the use of other hydrocarbon-related sources of energy.

It is possible that the infrastructure currently supplying natural gas to the proposed market area could be developed in other ways unforeseen at this point. This might include constructing or expanding regional pipelines as well as LNG import and storage systems. Any construction or expansion work would result in specific environmental impacts that could be less than, similar to, or greater than those associated with the proposed Project. An analysis of the most reasonably foreseeable natural gas system alternatives has been included in Section 3.2.

Higher natural gas prices is another potential outcome of denying North Baja's applications. Higher natural gas prices could potentially adversely influence the regional economy by reducing realized

household incomes and business profits (Greenspan 2003). Natural gas prices were recently assessed by the CEC in its *Transmittal of 2005 Energy Report, Range of Need and Policy Recommendations to the California Public Utilities Commission* (CEC 2005b). The CEC's report indicates that since the energy crisis of 2001, natural gas prices have remained high. The CEC attributes this to global crude oil markets, a decreasing rate in finding new natural gas supplies, and events related to weather including Hurricanes Katrina and Rita. According to the CEC's *2005 Integrated Energy Policy Report* (CEC 2005a), California currently has little influence over national gas market prices. Thus, even when California's own demand is moderate, in-State prices can spike in response to extreme weather conditions in other parts of the country.

According to the CEC, the cost to deliver natural gas to the West Coast via an LNG project could be well below the market prices that California pays at its borders. Thus, a potential new supply source close to or in California could have the effect of lowering the market price for natural gas in California. However, actual prices to consumers will depend upon contracts signed between suppliers and consumers or their representatives.

Denying the applications may also result in the growing reliance on increased energy efficiency and renewable energies. Energy efficiency has historically been highly effective as a means to reduce demand, and an increase in natural gas efficiency programs could further reduce demand and directly benefit customers (CEC 2005a). This conclusion is corroborated by analyses in two reports recently issued by the American Council for an Energy Efficient Economy (ACEEE). These reports found that increased energy efficiency and the installation of renewable energy generation could reduce the demand for natural gas and result in lower natural gas prices (Elliot et al. 2003, Elliot and Shipley 2005).

California in particular has made significant efforts to develop and implement conservation and efficiency measures to reduce the use of natural gas and other fossil fuels and has strongly promoted the development of renewable energies, which are required to provide 20 percent of the State's energy needs by 2017. One of these programs provides funding for emerging technologies such as photovoltaic (direct conversion of sunlight to electricity), solar thermal electric (the conversion of sunlight to heat and its concentration and use to power a generator to produce electricity), fuel cell (the conversion of hydrogen or hydrogen rich gases into electricity by a direct chemical process), and small wind turbines (small electricity-producing, wind-driven generating systems with a rated output of 50 kilowatts or less). Another program, the Geothermal Program, promotes the research, development, demonstration, and commercialization of California's enormous earth heat energy sources. Thus, it seems likely that additional conservation measures and renewable energy development, but only above the levels deemed feasible now and in the foreseeable future (CEC 2005a), could have some effect on the demand for natural gas.

However, it seems unlikely based on energy demand projections that either increased conservation or increased development of renewable energies could reliably replace the need for natural gas or provide sufficient energy to keep pace with demand at this time. Work by the ACEEE and the CEC seems to support this conclusion. The ACEEE report, for example, recognized that energy efficiency and renewable energy are not the only policy solutions required to address the future natural gas needs of the country and that additional sources of natural gas will be required from either domestic sources or through the importation of gas in the form of LNG (Elliot et al. 2003).

Denying North Baja's applications and the continuing high cost of natural gas could force potential natural gas customers to seek regulatory approval to use other forms of energy and increase the use of other fossil fuels. The effect of high natural gas prices on the demand for other fuels was noted in the Energy Information Administration's (EIA) *Annual Energy Outlook 2004 Report*. According to the

EIA, the projections for the national growth of total coal consumption increased 0.3 percent from 2003 to 2004, primarily due to higher natural gas prices (EIA 2004).

The use of other fossil fuels instead of natural gas could increase emissions of regulated pollutants (e.g., NO_x, sulfur dioxide [SO_2], particulate matter having an aerodynamic diameter of 10 microns or less [PM_{10}], particulate matter having an aerodynamic diameter equal to of 2.5 microns or less [$PM_{2.5}$) or unregulated greenhouse gases (e.g., carbon dioxide [CO_2]). Compared to other fossil fuels such as coal or oil, natural gas is a relatively clean and efficient fuel. Given that there are emissions associated with producing, processing, transmitting, and distributing natural gas and other fossil fuels, it is difficult to exactly quantify the impact of denying the Project on local and regional air quality. However, credible estimates of air emissions can be developed based upon reasonable assumptions regarding burning natural gas delivered by the Project compared to burning fossil fuels that would likely be utilized if the gas from the Project were not available.

Table 3.2.1-1 lists the emissions that would result from the combustion of approximately 2.7 billion standard cubic feet per day (Bscfd) of natural gas in southern California markets and the corresponding emissions that would result if an equivalent amount of energy were generated using fuel oil or coal in lieu of natural gas (inside or outside of California). It is clear from the table that the use of either fuel oil or coal would increase emissions significantly. To comply with current air emission regulations, emission control technologies could be required that could limit the economic viability and/or affect the location of any new oil- or coal-fired facility. For example, it is conceivable that California's demand for electricity would increasingly be met by oil- or coal-fired facilities outside of California (e.g., Nevada or Mexico) if new sources of natural gas are not developed.

TABLE 3.2.1-1

Comparison of Air Emissions from Burning Fossil Fuels [a]

	Emission Rate (tons per year)					
Fossil Fuel	SO_2	NO_x	$PM_{10}/PM_{2.5}$	CO	CO_2	C
Natural Gas	297	44,698	3,577	44,401	49,499,999	13,500,000
Fuel Oil	233,936	89,405	5,070	47,088	71,774,999	19,575,000
Coal	625,819	312,911	13,859	9,768	94,049,999	25,650,000

[a] The emissions generated by coal, fuel oil, and natural gas were estimated using the most recent Best Available Control Technology (BACT) Analyses found on the U.S. Environmental Protection Agency Reasonably Available Control Technology/BACT/Lowest Achievable Emission Rate Clearinghouse for boilers with heat input ratings between 100 and 250 million British thermal units per hour. The emissions from each fuel source are estimated based on a total annual fuel use of 2.7 billion standard cubic feet per day, 365 days per year.

SO_2 = sulfur dioxide
NO_X = nitrogen oxides
PM_{10} = particulate matter having an aerodynamic diameter less than or equal to 10 microns or less
$PM_{.2.5}$ = particulate matter having an aerodynamic diameter less than or equal to 2.5 microns
CO = carbon monoxide
CO_2 = carbon dioxide
C = carbon

3.2.2 System Alternatives

System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems to meet the stated objectives of the proposed Project. A system alternative would make it unnecessary to construct all or part of the proposed Project, although some modifications or additions to another existing pipeline system may be required to increase its capacity, or another entirely new system may need to be constructed. Such modifications or additions would result in

environmental impact; however, the impact could be less than, similar to, or greater than that associated with construction of the proposed Project. The purpose of identifying and evaluating system alternatives is to determine whether potential environmental impacts associated with the construction and operation of the proposed facilities could be avoided or reduced while still allowing the stated basic objectives of the Project to be met.

3.2.2.1 Other Existing Pipeline Systems

Existing pipeline systems currently operating in the Project area were evaluated to determine if they could possibly deliver the proposed volumes of natural gas to the U.S.-Mexico border. Existing interstate pipeline systems deliver about 5.7 Bscfd of natural gas to markets in southern California (EIA 2003). A majority of this natural gas comes from production areas in the Rocky Mountains or central United States via pipeline systems owned by the Mohave Pipeline Company, Kern River Gas Transmission Company, Transwestern Pipeline Company, LLC (Transwestern), and El Paso. The Kern River Pipeline, which connects southern California with the Rocky Mountain supply basin, is operating at or near capacity and is not capable of delivering significant additional gas to southern California without looping at least part of its 926-mile length and adding compression facilities. The Mojave Pipeline Company, Transwestern, and El Paso pipeline systems, in contrast, are not currently operating at capacity much of the time. However, as discussed previously, the gas supply from the basins that supply these pipelines is declining. Additionally, none of these pipeline systems, with the exception of the North Baja system, has a connection with the Mexican natural gas pipeline system. Thus, these companies would have to build new pipelines to connect to Mexican LNG-source supplies, which none have proposed to do. For these reasons, no further consideration was given to these pipeline system alternatives in this EIS/EIR.

The existing natural gas pipelines in the same area that could serve the markets of the proposed facilities include the San Diego Gas and Electric (SDG&E) and SoCal Gas pipelines. These pipelines are discussed below.

San Diego Gas & Electric Alternative

SDG&E is a major wholesale customer of SoCal Gas. The SDG&E system was designed to flow natural gas south from SoCal Gas to the San Diego area. For this pipeline to be used to transport gas from LNG import terminals in Mexico, a project proponent could utilize a currently inactive pipeline that runs from the Transportadora de Gas Natural de Baja California (TGN) system near Tijuana, Mexico, north into the United States, and connects with the SDG&E pipeline. This system alternative would involve construction of a receipt lateral from the LNG terminal(s) to the TGN pipeline, modification of the inactive pipeline and the interconnect with the SDG&E pipeline, upgrading of the SDG&E system in order to reverse the flow, and modification of the interconnection between the SDG&E and SoCal Gas systems.

Currently, the SDG&E system is at or near capacity on peak days; therefore, facility improvements would be required to accommodate any new natural gas volumes between 300 and 700 MMscfd (Sempra Energy Utilities 2003). To deliver the 2.7 Bscfd volume that could be transported by the proposed Project, it would also be necessary to loop all or part of the 23-mile-long TGN pipeline. Larger volumes would require looping the existing pipeline from Santee to Escondido, as well as from Escondido to Rainbow, with associated environmental impacts. To bring gas north from LNG import terminals in Baja California through San Diego County, an entirely new pipeline would have to be constructed through steep terrain containing sensitive habitats and densely populated and commercial areas. No such pipeline expansion has been proposed. Moreover, the environmental impact of such a pipeline would be at least as great if not greater than the impact of the proposed Project. This alternative

would also not serve the needs of either the Blythe Energy Facility I or the IID. Therefore, this alternative was eliminated from further consideration.

SoCal Gas Alternative

Currently, the IID receives natural gas from SoCal Gas' existing intrastate pipelines that extend south through the Chocolate Mountains to the Imperial Valley. At present, this system provides neither the supply diversity (i.e., access to LNG-source gas) nor direct access to an interstate pipeline system. The SoCal Gas alternative, as a stand-alone system, does not presently, or within the time frame of the proposed Project, meet the objectives of the Project. Therefore, this alternative was eliminated from further consideration.

3.2.2.2 Pipelines From Other Onshore and Offshore LNG Projects Proposed in California

There are several LNG import terminals proposed in southern California. If any of these terminals are built, some combination of new and existing pipelines would be used to provide LNG-source gas to southern California via the existing SoCal Gas infrastructure. Table 3.2.2-1 shows LNG import terminals proposed in southern California that have applied for Federal licensing either from the U.S. Coast Guard (offshore) or the FERC (onshore).

TABLE 3.2.2-1

Proposed LNG Import Terminals and Pipelines in California

Proponent	Project Name	Location/Type	Proposed Capacity in MMscfd (average/peak)	Anticipated In-Service Date [a]	Needed Pipeline Construction
BHP Billiton	Cabrillo Port LNG Deepwater Port Project	Offshore Oxnard, CA/New Facility	800/1,500	2010	two 21.5-mile-long, 24-inch-diameter offshore pipelines; 14.3-mile-long, 36-inch-diameter pipeline; and 7.7-mile-long, 30-inch-diameter onshore pipeline
North Star Natural Gas	Clearwater Port Project	Offshore Oxnard, CA/Conversion of Oil Platform Grace	800/1,200	2009	12.6-mile-long, 32-inch-diameter offshore pipeline and 12-mile-long, 36-inch-diameter onshore pipeline
SES Terminal LLC	Long Beach LNG Import Project	Long Beach, CA/New Facility	700/800	2010	2.3-mile-long, 36-inch-diameter onshore pipeline and 4.6-mile-long, 10-inch-diameter onshore pipeline

[a] All projects are undergoing delays in the environmental review process and the in-service dates, if the projects were approved, potentially would be later.

Source: CEC 2004, FERC and POLB 2005.

Each of these projects, if built, could provide southern California with access to LNG-source gas. However, the purposes of the proposed Project of providing an additional/alternate source of natural gas (LNG-source gas) to the IID, the Blythe Energy Facility I, and other regions of the southwestern United States would not specifically be met. While it would not be infeasible for SoCal Gas to transport gas from the BHP Billiton or SES Terminal LLC projects to the southwestern United States, none of these terminals has yet to receive regulatory approval; therefore, it is unlikely that any of these projects would be in service before 2010. The proposed Project could allow LNG-source gas to flow into California and southwestern U.S. markets by early 2008. The environmental impacts of the above proposed California LNG projects are not analyzed in this EIS/EIR because such analyses would duplicate the analyses

already performed in the draft EIS/EIRs that have been prepared for the BHP Billiton and SES Terminal LLC projects.

3.2.3 Route Alternatives

Route alternatives, within the context of the proposed Project, are identified to determine if impacts could be avoided or reduced on environmentally sensitive resources, such as large population centers, scenic areas, and wildlife and natural habitat management areas that would be crossed by the proposed route. While the origin and delivery points of route alternatives are generally the same as for the corresponding segment of a proposed pipeline route, the alternatives could follow significantly different alignments. One route alternative was evaluated for the B-Line, and seven route alternatives were evaluated for the IID Lateral as discussed below.

3.2.3.1 B-Line Route Alternatives

A factor generally considered in the evaluation of route alternatives for a looping project is whether it is possible to install the majority of the proposed pipeline 25 feet from the existing pipeline. The collocation of facilities is generally preferred by land management agencies, land use planners, and other regulatory agencies and has several inherent engineering and environmental advantages. Perhaps the most important of these advantages is that new land disturbance is minimized. By overlapping the construction right-of-way with other previously disturbed existing rights-of-way, the amount of new land disturbance can be reduced significantly. This is particularly important in arid environments where revegetation is slow and evidence of construction often persists for years. Because of these advantages, alternatives that deviate from the existing right-of-way are generally driven by issues such as the engineering impracticality of remaining adjacent to the existing right-of-way, or reducing environmental impact. These advantages also explain why this EIS/EIR does not address an alternative route along the Arizona side of the Colorado River that was suggested during the scoping process. Route alternatives are generally not adopted if they would merely transfer impacts from one or more property owners or communities to another without conferring obvious environmental advantages.

22nd Avenue Alternative

Although not mentioned during the public scoping process for the proposed Project, safety concerns regarding the placement of a large natural gas pipeline near several residences along 18th Avenue were raised during the planning for the A-Line. As discussed in Section 2.2.1, North Baja proposes to install the B-Line within its existing 50-foot-wide permanent right-of-way for the A-Line using a standard 25-foot offset. The 22nd Avenue Alternative was evaluated to avoid potential impacts on residents along 18th Avenue from construction and operation of the B-Line (see Figure 3.2.3-1).

The 22nd Avenue Alternative deviates from North Baja's existing A-Line at MP 14.5, due west of 22nd Avenue. At this point, the route extends due east for approximately 0.8 mile across BLM lands before descending into the Palo Verde Valley and continuing east across open desert and agricultural fields for approximately 1 mile. The alternative then continues east in the roadway of 22nd Avenue for the next 8 miles until reaching Intake Boulevard. The route then turns north for approximately 1 mile, turns east on 20th Avenue for 0.5 mile, and then turns north along the D-10 Canal for approximately 1 mile. The alternative rejoins the proposed B-Line route at MP 3.0 on 18th Avenue. An environmental comparison of the 22nd Avenue Alternative with the corresponding segment of the proposed route is presented in Table 3.2.3-1.

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Figure 3.2.3-1 22nd Avenue Route Alternative

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TABLE 3.2.3-1 **Environmental Comparison of the 22nd Avenue Alternative with the Proposed Route MPs 3.0 to 14.5**			
Environmental Factor	Unit	22nd Avenue Alternative	Proposed Route
Length of route	miles	12.4	11.5
Adjacent to existing road or pipeline right-of-way	miles	11.6	11.5
Canals, drains, and ditches crossed	number	26	20
Wetlands crossed	number	3	0
Residences within 100 feet	number	11	17
New aboveground facility sites required	number	2	0

The 22nd Avenue Alternative would be 12.4 miles long compared to the 11.5-mile-long corresponding segment of the proposed route. Both routes would cross several canals and drains, but construction methods would avoid impacts on those features. Construction of the 22nd Avenue Alternative would require new aboveground facility sites for the installation of a valve at the deviation point, as well as a valve and pig launcher and receiver facilities to be located on BLM land on the Palo Verde Mesa. In comparison, the proposed B-Line route would only require the expansion of existing aboveground facility sites to accommodate new valves and pigging facilities. Additionally, the alternative would require 18.3 acres of new right-of-way, while the proposed route would encumber less than 1 acre of land because it would be within the permanent easement of the existing A-Line. Operation and maintenance activities would be more difficult with the 22nd Avenue Alternative due to the 2-mile separation of the A- and B-Lines and associated aboveground sites. The alternative, however, would affect six fewer residences.

Although the alternative would avoid potential impacts on the residents along 18th Avenue, it would introduce similar potential impacts on residents along 22nd Avenue and Intake Boulevard. As discussed above, route alternatives are generally not adopted if they would merely transfer impacts from one or more property owners or communities to another without conferring obvious environmental advantages. Furthermore, the advantage gained by temporarily inconveniencing six fewer residences along the 22nd Avenue Alternative is not sufficient to offset the disadvantages of separating the A-Line from the B-Line, requiring new aboveground facility sites on previously undisturbed land, encumbering more land, impacting more agricultural land, and increasing operation and maintenance work. Therefore, the 22nd Avenue Alternative was eliminated from further consideration.

3.2.3.2 IID Lateral Route Alternatives

The process of assessing routes from the existing North Baja system to the IID's El Centro Generating Station involved the consideration of two key components: (1) the stipulations in the BLM's CDCA Plan; and (2) the crossing of the ISDRA. Figure 3.2.3-2 provides an overview of the routes considered in the United States for the IID Lateral. Six of these routes are considered route alternatives and are discussed below; the remaining four routes are considered route variations and are discussed in Section 3.2.4. Additionally, a route alternative that runs directly from the Gasoducto Bajanorte pipeline in Mexico to the IID's El Centro Generating Station was briefly considered as discussed later in this subsection.

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Figure 3.2.3-2 IID Lateral U.S. Route Alternatives Overview

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California Desert Conservation Area (CDCA) Crossing Alternatives

The CDCA Plan stipulates that new gas transmission facilities located in multiple-use classes "L," "M," and "I" lands should be located within designated utility corridors. Under the Energy Production and Utility Corridors Element of the CDCA Plan, 16 planning corridors have been identified to address utility facilities, including all pipelines with diameters greater than 12 inches.

Utility corridor "L" is a 2-mile-wide corridor that runs east-west through the southeastern portion of the CDCA following the All-American Canal, then turns north for 2 miles to rejoin Interstate 8. The corridor then follows Interstate 8 for approximately 2 miles to the edge of the BLM's jurisdiction. The proposed route is located within Utility Corridor "L" between MPs 0.0 and 19.0 and MPs 26.0 and 27.5, which is through a portion of the NECO Planning Area and the ISDRA. The section of the proposed route between MPs 19.0 and 26.0 and MPs 27.5 and 27.6, although lying within a corridor occupied by Interstate 8, Evan Hewes Highway, and electric transmission lines, is just north of the designated Utility Corridor "L." Consequently, these sections of the proposed IID Lateral route, where it crosses BLM land, would require a CDCA Plan amendment.

Two alternative routes were examined that would stay within the designated Utility Corridor "L" for a longer distance than the proposed route: the Corridor L Alternative and the Bonds Corner Alternative (see Figure 3.2.3-3) as discussed below.

<u>Corridor L Alternative</u> – The Corridor L Alternative deviates from the proposed route at MP 16.3 and follows SR 98 just north of the CalTrans right-of-way for about 7.5 miles. The alternative then turns due north and follows just to the east of the existing transmission lines for 2.5 miles before turning northeast and following the southern edge of the CalTrans right-of-way for Interstate 8 for 3.0 miles. The alternative rejoins the proposed route at MP 27.3. An environmental comparison of the Corridor L Alternative with the corresponding segment of the proposed route is presented in Table 3.2.3-2.

The Corridor L Alternative would be 2.0 miles longer than the proposed route and would require 15.1 more acres of construction right-of-way. The Corridor L Alternative would also require significantly more permanent right-of-way compared to the proposed route (76.1 acres) because the majority of the proposed route in this area would be installed within the county road right-of-way associated with Evan Hewes Highway. Because it would be located within the road right-of-way, only a 2-foot-wide permanent right-of-way would be retained. Although the Corridor L Alternative would be adjacent to existing road rights-of-way for about 81 percent of the route, the pipeline would not be within the actual road rights-of-way associated with SR 98 and Interstate 8 because CalTrans' regulations prohibit the installation of high-pressure natural gas pipelines within any State highway right-of-way except by special exception as discussed below for the CalTrans Alternative. In addition, the 2.5 miles where the Corridor L Alternative parallels existing transmission lines would create new ground disturbance in an area where no current ground-disturbing right-of-way is maintained. Overall, the Corridor L Alternative shows substantially more habitat diversity than the proposed route, with three subtypes of creosote scrub and several locations of tamarisk present. The proposed route has only the *Larrea – Ambrosia* habitat type along its entire length. No residences would be within 100 feet of the Corridor L Alternative or the proposed route and no canals or drains would be crossed by either route.

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Figure 3.2.3-3 Corridor L and Bonds Corner Route Alternatives

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TABLE 3.2.3-2

Environmental Comparison of the Corridor L Alternative with the Proposed Route MPs 16.3 to 27.3

Environmental Factor	Unit	Corridor L Alternative	Proposed Route
Length of route	Miles	13.0	11.0
Construction right-of-way [a]	Acres	96.4	81.3
Permanent right-of-way [b]	Acres	78.8	2.7
Adjacent to/within road right-of-way and easements	Miles	10.5	10.8
Vegetation Type			
Larrea tridentata – Ambrosia dumosa alone or with other species	Percentage	48	100
Larrea tridentata – Atriplex canescens and other species	Percentage	19	0
Larrea tridentata with tamarisk and other species	Percentage	34	0
Larrea tridentata with *Prosopis* or *Acacia*	Percentage	12	0
Residences within 100 feet	Number	0	0
Canals crossed	Number	0	0
Drains crossed	Number	0	0
Lake Cahuilla Area of Critical Environmental Concern (ACEC) affected	Acres	24.0	0.1
East Mesa ACEC affected	Acres	0.1	7.1
Poor flat-tailed horned lizard habitat affected	Acres	93.7	79.0
Fair flat-tailed horned lizard habitat affected	Acres	2.7	2.2
Known archaeological sites within 400 meters [c]	Number	17	10
BLM-managed land crossed within corridor	Miles	12.0	3.9
BLM-managed land crossed outside corridor that would require a CDCA Plan amendment	Miles	0.0	6.6

[a] Based on an approximately 60-foot-wide construction right-of-way.

[b] Based on a 2-foot-wide permanent right-of-way for the proposed route because the majority of the pipeline in this area would be installed within the county road right-of-way associated with Evan Hewes Highway. Based on a 50-foot-wide permanent right-of-way for the Corridor L Alternative because the pipeline would not be installed within road rights-of-way.

[c] Based on a literature search.

The Corridor L Alternative would affect 24.0 acres of the Lake Cahuilla ACEC compared to 0.1 acre for the proposed route. The Lake Cahuilla ACEC is mapped with its eastern edge defined by the electric transmission lines. Because Corridor L is defined as 1 mile on either side of the transmission lines, it overlaps the Lake Cahuilla ACEC by 1 mile for the 2.5 miles between SR 98 and Interstate 8. The Corridor L Alternative would cross the Lake Cahuilla ACEC for the entire 2.5 miles. The Lake Cahuilla ACEC was designated to recognize and protect the significant cultural resources found along the eastern edge of the ancient shoreline of Lake Cahuilla (now largely occupied by the irrigated Imperial Valley).

North Baja's literature review identified 17 cultural resources within a 400-meter-wide Corridor L Alternative records search corridor. These resources consist of 2 isolated finds and 15 archaeological sites. The sites include lithic scatters, ceramic scatters, temporary campsites, a habitation area, and possible cores. The historic sites are refuse and tin can scatters. These sites are not known to have been evaluated and may potentially be eligible for listing on the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). In comparison, a literature review of the

corresponding segment of the proposed route identified 10 cultural resources within a 400-meter-wide records search corridor. No cultural resources were identified during North Baja's field surveys of a 100-foot-wide corridor for the corresponding segment of the proposed route. Although a quantitative comparison of the Corridor L Alternative with the corresponding segment of the proposed route cannot be made because cultural resources field surveys have not been conducted for the Corridor L Alternative, the Corridor L Alternative's greater impact on previously undisturbed land and 2.5-mile-long crossing of the Lake Cahuilla ACEC elevates the chance of unanticipated significant cultural resources discovery and disturbance.

The proposed route would affect 7.1 acres of the East Mesa ACEC compared to 0.1 acre for the Corridor L Alternative. The East Mesa ACEC was primarily designated for flat-tailed horned lizard protection and management. The proposed route would be within the road right-of-way associated with Evan Hewes Highway for the entire length it crosses the East Mesa ACEC.

North Baja conducted biological resources surveys of the Corridor L Alternative and the corresponding segment of the proposed route to compare the extent of flat-tailed horned lizard habitat available on each route and to determine the presence or absence of this species. About 97 percent of the Corridor L Alternative (93.7 acres) would affect habitat classified as "poor" while 3 percent (2.7 acres) would affect habitat classified as "fair." Similarly, about 97 percent of the proposed route (79.0 acres) would affect habitat classified as "poor" while 3 percent (2.2 acres) would affect habitat classified as "fair." For both routes, the habitat classified as "poor" includes sandy silt substrate with pebbles and a small portion of desert pavement, and habitat classified as "fair" includes partially stabilized sand dunes with some ant presence although the proposed route also crosses a few patches of blow sand.

A disadvantage of the proposed route is that 6.6 miles would be on BLM-managed land outside of a designated utility corridor. Therefore, the proposed route would require an amendment to the CDCA Plan. In contrast, the Corridor L Alternative would be entirely within a designated utility corridor and would not require a CDCA Plan amendment. However, the Corridor L Alternative would be longer and would disturb more land during construction compared to the proposed route. The alternative would also require significantly more permanent right-of-way compared to the proposed route because of its location adjacent to but not within road rights-of-way. The vegetation that would be disturbed along the Corridor L Alternative is also more diverse than the vegetation that would be affected by the proposed route. It also appears that the Corridor L Alternative could affect more archaeological sites compared to the proposed route. For these reasons, the Agency Staffs believe the advantage of being within a designated utility corridor is not sufficient to offset the disadvantages of the greater amount of land disturbance and permanent right-of-way required for the Corridor L Alternative and potentially greater impact on vegetation and cultural resources. Therefore, the Corridor L Alternative was eliminated from further consideration.

Bonds Corner Alternative – The Bonds Corner Alternative deviates from the proposed route at MP 16.3 and follows the same route as the Corridor L Alternative for the first 7.5 miles (see Figure 3.2.3-3). The Bonds Corner Alternative then continues west along SR 98 and the All-American Canal. The alternative would cross the East Highline Canal (using the HDD method) and continue to the west for approximately 3 miles across the Imperial Valley until turning north and following Bonds Corner Road for approximately 5.5 miles. The alternative rejoins the proposed route at MP 31.5. An environmental comparison of the Bonds Corner Alternative with the corresponding segment of the proposed route is presented in Table 3.2.3-3.

TABLE 3.2.3-3

Environmental Comparison of the Bonds Corner Alternative with the Proposed Route MPs 16.3 to 31.5

Environmental Factor	Unit	Bonds Corner Alternative	Proposed Route
Length of route	Miles	20.0	15.2
Construction right-of-way [a]	Acres	145.5	110.5
Permanent right-of-way [b]	Acres	121.2	3.7
Canals crossed	Number	10	1
Drains crossed	Number	7	3
Residences within 100 feet	Number	8	6
Lake Cahuilla Area of Critical Environmental Concern (ACEC) crossed	Miles	2.2	0.3
BLM-managed land crossed within corridor	Miles	1.0	4.1
BOR-withdrawn land crossed within corridor	Miles	0.0	0.0
BLM-managed land crossed outside corridor that would require a CDCA Plan amendment	Miles	2.4	6.8
BOR-withdrawn land crossed outside corridor	Miles	1.8	0.0
Adjacent to/within road right-of-way and easements	Miles	20.0	14.5
East Mesa ACEC crossed	Miles	0.0	2.2

[a] Based on a 60-foot-wide construction right-of-way.

[b] Based on a 2-foot-wide permanent right-of-way for the proposed route because the majority of the pipeline in this area would be installed within the county road right-of-way associated with Evan Hewes Highway and Hunt Road. Based on a 50-foot-wide permanent right-of-way for the Bonds Corner Alternative because the pipeline would not be installed within road rights-of-way.

The Bonds Corner Alternative would be 4.8 miles longer than the proposed route and would require 35.0 more acres of construction right-of-way. The Bonds Corner Alternative would also require significantly more permanent right-of-way compared to the proposed route (117.5 acres) because the majority of the proposed route in this area would be installed within the county road right-of-way associated with Evan Hewes Highway and Hunt Road. Because the proposed pipeline would be located within the road right-of-way, only a 2-foot-wide permanent right-of-way would be retained. Although the Bonds Corner Alternative would be adjacent to existing road rights-of-way for its entire length, the pipeline would not be within the actual road rights-of-way because CalTrans' regulations prohibit the installation of high-pressure natural gas pipelines within any State highway right-of-way except by special exception as discussed below for the CalTrans Alternative. The alternative would be within 100 feet of more residences and require more canal and drain crossings than the proposed route. The new right-of-way crossed by the alternative would be adjacent to SR 98 in relatively undisturbed habitat across BLM lands. An additional disadvantage of the alternative is that it would cross 2.2 miles of the Lake Cahuilla ACEC compared to 0.3 mile of the ACEC that would be crossed by the proposed route. As discussed above, the Lake Cahuilla ACEC was designated to recognize and protect the significant cultural resources found along the eastern edge of the ancient shoreline of Lake Cahuilla. North Baja states that the crossing of the Lake Cahuilla ACEC for 2.2 miles elevates the chance of unanticipated significant cultural resources discovery and disturbance. A disadvantage of the proposed route is that it would cross 2.2 miles of the East Mesa ACEC; the Bonds Corner Alternative would not cross the East Mesa ACEC. Both the proposed route and the alternative would be outside a designated utility corridor on BLM-managed land (6.8 and 2.4 miles, respectively) and would require an amendment to the CDCA Plan. The Agency Staffs believe the greater amount of land disturbance and permanent right-of-way required for the Bonds Corridor Alternative outweigh its advantages and eliminated it from further consideration.

Imperial Sand Dunes Recreation Area (ISDRA) Crossing Alternatives

The ISDRA is an important and intensively utilized OHV and camping area. To address the concerns of commentors concerning potential conflicts with existing and planned recreational use in the ISDRA, four alternatives were considered for crossing the ISDRA: (1) the CalTrans Alternative, (2) the ISDRA North Alternative, (3) the ISDRA Transmission Line Alternative, and (4) the ISDRA Grays Well Road Alternative. Figures 3.2.3-4 and 3.2.3-5 illustrate the ISDRA route siting factors and alternatives. Concerns considered during the evaluation of these alternatives included sensitive biological and cultural resources as well as technical issues such as pipeline construction through sand dunes, the crossings of the All-American Canal and Interstate 8, and the avoidance of conflicts with other linear facilities (e.g., the freeway, several electrical transmission lines, and buried communication facilities). Additionally, another major construction effort planned in the same general location, the lining of the All-American Canal, needed to be considered.

CalTrans Alternative – During North Baja's public outreach efforts, the Off-Road Business Association suggested that North Baja consider routing the IID Lateral entirely within the CalTrans right-of-way where it crosses the ISDRA because the right-of-way is off-limits to OHV use. However, CalTrans acquires and manages its easements for road transportation purposes only. Section 606.4 of the CalTrans *Encroachment Permits Manual* states "Placement of longitudinal utilities encroachments within freeway and expressway right-of way is prohibited under Department policy." Section 607.3 states "High risk pipelines conveying gas, oil or other flammable fluid are not permitted unless they are dedicated to a public use." High risk pipelines are defined in the CalTrans *Manual on High & Low Risk Underground Facilities within Highway Rights of Way* to include natural gas pipelines greater than 6 inches in diameter, or pipelines operating at a pressure greater than 60 psig.

The *Encroachment Permits Manual* also states that under unusual circumstances, requests for longitudinal placement can be reviewed under the exception process for State highways, and the approval of both the State and Federal Highway Administration is required. Based on past experience with CalTrans, the time frame for it to review and potentially consider an exception would be lengthy and CalTrans would be unlikely to approve a parallel encroachment when a feasible alternative exists as is the case for the proposed Project. Consequently, the CalTrans Alternative is not considered to be feasible and was eliminated from further consideration.

ISDRA North Alternative – The ISDRA North Alternative stays north of the All-American Canal between MPs 2.0 and 8.2 of the proposed route. This alternative takes advantage of relatively level terrain immediately north of the All-American Canal and would avoid two crossings of the All-American Canal and Interstate 8. The alternative would provide a feasible location to stage a long HDD to the west under the sand dunes and would emerge in Dune Buggy Flats, which would avoid difficult construction in the dunes. However, consultation with IID staff revealed that the All-American Canal Lining Project conflicts with this route alternative. The IID intends to utilize the level area north of the existing canal for a temporary canal and construction work area (Hocking 2006).

The ISDRA North Alternative would avoid the high OHV-use Buttercup Management Area; however, it would place the pipeline in two other high OHV-use areas. One of these areas lies at the base of Test Hill, which is an area heavily used in the fall and winter. The other area is at Dune Buggy Flats, an area occupied from late November through March of each year by thousands of OHV users and campers. Because of the locational conflict with the All-American Canal Lining Project and the fact that the alternative only shifts, rather than avoids, potential conflicts with recreational land uses, this alternative was eliminated from further consideration.

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Figure 3.2.3-4 ISDRA Siting Factors

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Figure 3.2.3-5 ISDRA Route Alternatives

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ISDRA Transmission Line Alternative – The ISDRA Transmission Line Alternative was considered in an effort to minimize new impacts through the ISDRA. This alternative would be south of the All-American Canal and Interstate 8 and would parallel the transmission line corridor through the ISDRA area. This alternative deviates from the proposed route at MP 3.5 (just west of the HDD of the All-American Canal and Interstate 8) and continues southwest and follows the existing transmission line for approximately 3 miles. The alternative then turns west and would cross Interstate 8 and the All-American Canal (using the HDD method) just before rejoining the proposed route at approximate MP 8.0. Both the proposed route and the alternative would require two HDDs; however, the proposed route would also require a separate crossing of Interstate 8 that would likely be a conventional bored crossing.

This alternative follows existing utilities and stays immediately south of the more intensive camping uses at Midway and Grays Well camping areas, but would be installed in an area used by OHVs. Specifically, the ISDRA Transmission Line Alternative would be installed south of Grays Well Road that provides access to the Midway Campground and the Plank Road monument, and would stay south of that road until crossing under the freeway. This area is also presently subject to a vehicle closure to protect desert plant species, including the Peirson's milk-vetch. If the BLM maintains the closure, the ISDRA Transmission Line Alternative would be infeasible.

Although the ISDRA Transmission Line Alternative parallels existing linear facilities, according to BLM staff it crosses both the Buttercup Management Area and adjacent land that is more highly trafficked by OHV users than the proposed route. Additionally, the alternative crosses dunes with greater relief, which would entail more difficult construction and may potentially require measures to protect the integrity of the transmission tower footings, depending on site-specific conditions. Because of the heavier OHV use, construction constraints, and potential for the BLM to maintain the vehicle closure, this alternative was eliminated from further consideration.

ISDRA Grays Well Road Alternative – During Project planning, the BLM suggested that the area west of the Buttercup Campground between Grays Well Road and Interstate 8 is less intensively used than the area to the south of Grays Well Road. The ISDRA Grays Well Road Alternative considers a route in the strip between Interstate 8 and Grays Well Road. This area currently contains a wood pole line, a fiber optic line (Level 3), and is constricted by a relatively wide (400-foot) CalTrans right-of-way. Early investigations suggested that there may be room within this strip for the proposed 16-inch-diameter IID Lateral; however, a recent field survey to locate the Level 3 fiber optic line concluded that there is not sufficient space within this strip for the pipeline. Therefore, this alternative is infeasible and was eliminated from further consideration.

Gasoducto Bajanorte Pipeline Route Alternative

A route alternative between the Gasoducto Bajanorte pipeline and the IID's El Centro Generating Station was evaluated (see Figure 3.2.3-6). The alternative interconnects with the Gasoducto Bajanorte pipeline west of Mexicali in the vicinity of La Rosita, Mexico. From there it proceeds north and crosses the Mexico-U.S. border into California near the junction of the Westside Main Drain and the All-American Canal. Once in the United States, the alternative proceeds north adjacent to Brockman Road until it crosses the New River 5 miles west of Heber. It then turns and proceeds east following McCabe Road to a point about 0.5 mile east of Dogwood Road. At this point, the alternative proceeds north across Interstate 8 and a congested area surrounding Evan Hewes Highway until it joins the proposed route just east of the IID's El Centro Generating Station.

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Figure 3.2.3-6 Gasoducto Bajanorte Pipeline Route Alternative

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This alternative would be approximately 23 miles in length and thus would be substantially shorter than the proposed IID Lateral. About 18 miles of the alternative would be within the United States. Nearly all of the pipeline route in the United States (about 17.5 miles) would cross irrigated agricultural land; the remaining 0.5 mile would cross urban land uses.

Although the alternative would have less environmental impact than the IID Lateral based on its shorter length, it would not meet the Project objective of providing the IID with a connection to the U.S. interstate pipeline systems. As currently configured, the IID Lateral would provide the IID with direct access to U.S. gas supplies via the existing interconnection between North Baja and El Paso. As discussed in Section 1.1, the El Centro Generating Station currently receives its natural gas from SoCal Gas. The volumes delivered by the North Baja system would be used to serve the existing generating load at the station and would provide supply and supplier diversification for the IID. North Baja would continue to provide southbound natural gas transportation of domestic supplies on its system via backhaul. In this way the IID Lateral would enable the IID to gain access to domestic supplies as well as the LNG sources in Mexico providing it with greater flexibility and reliability in choosing its gas supplies. The alternative would restrict the IID to LNG-source gas solely and would not provide the IID with the expanded access to the domestic supplies that it needs. For this reason, the Gasoducto Bajanorte Pipeline Route Alternative is not considered to be a viable alternative to the proposed IID Lateral and was eliminated from further consideration.

3.2.4 Route Variations

Route variations differ from system alternatives or route alternatives in that they are identified to reduce impact on specific localized resource issues such as residences, cultural resources sites, biological resources, and areas of steep terrain. Additionally, route variations may be examined to avoid conflicts with other projects. The four route variations evaluated for the proposed Project are described below.

3.2.4.1 East Mesa North Route Variation

North Baja initially planned to locate the IID Lateral in the northern road shoulder of Evan Hewes Highway from MPs 8.5 to 26.0; however, the BOR's plans for the Drop 2 Reservoir would interfere with this route. Therefore, North Baja adjusted its proposed route. The proposed route between MPs 8.1 and 8.5 is on the north side of Evan Hewes Highway. It then crosses the highway to the south side to avoid the BOR's planned supply canal location and continues on the south side of the highway for 5.1 miles. The proposed route then crosses back to the north side of the highway at MP 13.6.

The East Mesa North Route Variation depicted on Figure 3.2.4-1 deviates from the proposed route for 4.1 miles (from MPs 9.5 to 13.6) where it would stay on the north side of Evan Hewes Highway (as initially planned) instead of crossing to the south side of the road. This variation was originally developed because the BOR indicated it would pursue discussions with Imperial County regarding the abandonment of the Evan Hewes Highway right-of-way for a distance of 3 miles between the BOR lands and the private lands near Gordon's Well. The BOR's intent was to locate the canal and associated access roads in the middle of the highway. If this were the case, there would not be room for the IID Lateral on the south side of the new canal access road without conflicting with the CalTrans right-of-way for Interstate 8 and North Baja would need to adopt the East Mesa North Variation on the north side of Evan Hewes Highway.

As of January 3, 2006, however, the BOR has stated that there is a 98 percent chance that the Drop 2 Canal centerline would be just north of Evan Hewes Highway (Wahl 2006). Because the East Mesa North Variation would conflict with the BOR's Drop 2 Reservoir Project, this alternative was considered infeasible and eliminated from further consideration.

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Figure 3.2.4-1 East Mesa North Route Variation

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3.2.4.2 Imperial Valley Route Variations

The proposed route through the Imperial Valley includes the area from the west side of the East Highline Canal at MP 27.8 to the terminus of the IID Lateral at the El Centro Generating Station. From MP 27.8, the proposed route stays on Hunt Road and East Chick Road until MP 38.7 where it turns north on McGrew Road for 0.2 mile before crossing Interstate 8 (using the bore method). The proposed route then continues adjacent to a private field road to MP 39.7. At this point, the proposed route turns west along East Ross Road to MP 41.4 and then turns north along Parker Road for 1.5 miles. The proposed route would then be located in field roads on the north side of Interstate 8 for 0.5 mile until turning north along SR 111 for 0.2 mile where it would then turn west along the IID powerlines to MP 45.7.

The number of residences near the route, right-of-way encumbrances on private property, amount of farmland crossed, conflicts with other utilities, and scoping comments were considered in developing three variations to the proposed route. All three of these variations would be located primarily within existing Imperial County road rights-of-way. The three Imperial Valley variations are depicted on Figure 3.2.4-2.

Variation A

Variation A deviates from the proposed route at MP 36.9 and turns north along Barbara Worth Road, which crosses over Interstate 8. The pipeline would be bored under Interstate 8, and the workspace would be located in a field adjacent to the road right-of-way. North of Interstate 8, the variation continues north along Barbara Worth Road for approximately 0.5 mile before turning west along East Ross Road and rejoining the proposed route at MP 39.7.

Variation A would avoid the open field crossing north of McGrew Road, but it would be located for a longer distance in East Ross Road, which is a busier road with more utility encumbrances than the proposed route. The proposed route follows Hunt Road, which is unpaved, has fewer utilities, fewer obstructions, and fewer residences. Variation A, which follows East Ross Road, would impact a greater number of immediately adjacent residences, and potentially would have to be routed around underground pipe structures associated with irrigation. Any route variations around these pipe structures would require the pipeline to be placed in the adjacent agricultural fields. Because of these disadvantages, Variation A was eliminated from further consideration.

Variation B

Variation B deviates from the proposed route at MP 34.9 and turns north on Mets Road for 0.4 mile before crossing Interstate 8 and continuing north on Mets Road for 0.6 mile to East Ross Road. At East Ross Road it turns west and continues for 4.5 miles until it rejoins the proposed route at MP 39.7.

Similar to Variation A, Variation B would avoid the open field crossing north of McGrew Road. However, it would be located for a longer distance in East Ross Road, which is a busier road with more utility encumbrances than the proposed route. Because of these disadvantages, Variation B was eliminated from further consideration.

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Figure 3.2.4-2 Imperial Valley Route Variations

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Variation C

During the scoping process, landowners along the proposed route on Parker Road expressed concerns about impacts on their water delivery system, fences, and landscaping, as well as the possibility of losing rental income during construction. Variation C attempts to address this concern by continuing west along East Ross Road beyond Parker Road for an additional 0.7 mile. The variation then turns north along SR 111, which is a freeway at this location. The pipeline would be installed in agricultural lands for approximately 0.2 mile and would then follow an existing transmission line corridor with many other utilities adjacent to the freeway until rejoining the proposed route at MP 43.4.

Both Variation C and the corresponding segment of the proposed route are in areas where multiple utilities are already buried adjacent to the road. During field investigations, North Baja determined that the utility congestion along the proposed route did not preclude space for the pipeline. However, North Baja has not been able to confirm that space is available for Variation C because SR 111, a frontage road, a steel tower electric transmission line, and a canal are existing linear features within the corridor. North Baja states that it is likely Variation C would, at a minimum, require parallel encroachments within electric transmission facility and/or canal easements. A scoping comment was received from the owner of a business along the Variation C route expressing concern regarding potential negative impacts and disruptions to his business and the proximity of the pipe to the electrical transmission lines. Constructing or operating a pipeline in proximity to an electric transmission line is not generally considered to pose a safety risk; however, there could be some temporary inconvenience or disruption to the business during construction if Variation C were adopted.

To address the concerns of the landowners along the proposed route on Parker Road, North Baja has agreed to install the pipeline on the opposite side of Parker Road from the cluster of homes on the west side. North Baja would avoid water delivery systems, including both canals and pipes, by drilling or digging beneath them; therefore, no disruption of water service is expected. However, in the unlikely event of damage to a water system, North Baja would repair the system and provide an alternative water source until the repair is made. North Baja has provided site-specific residential construction mitigation plans for all residences and businesses within 100 feet of the construction work area, including the portion of the route on Parker Road (see site-specific plan numbers 4200-E-209 through 216 in Appendix O). These plans show that the fences, trees, and other landscaping along Parker Road would be avoided during construction. As shown in Table 4.8.3-1, the only residential features that would be potentially affected by construction along Parker Road are one gravel driveway and two mailboxes. North Baja has stated that it does not believe construction of the Project would result in loss of rental income because the residents/tenants would still have access to their homes. North Baja would, however, make every effort to accommodate special needs on a case-by-case basis, including reimbursing an owner who is unable to rent a property because of North Baja's construction activities.

Because North Baja has been able to address the specific concerns of the landowners along Parker Road, it is uncertain whether there is adequate space to install the pipeline along Variation C, and Variation C would merely transfer impacts from one or more property owners or communities to another without conferring obvious environmental advantages, Variation C was eliminated from further consideration.

3.2.5 Alternative Delivery Points - Arrowhead Alternative

On May 24, 2006, North Baja filed an alternative to the proposed delivery points to the SoCal Gas system and Blythe Energy Facility I supply pipeline along Riviera Drive. This alternative, referred to as the Arrowhead Alternative, would deliver natural gas to the SoCal Gas system at SoCal Gas' existing Blythe Compressor Station at the intersection of 14th Avenue and Arrowhead Boulevard in Riverside

County. The compressor station is approximately 2 miles north of the location on 18th Avenue where the existing A-Line and proposed B-Line cross Arrowhead Boulevard. The alternative delivery point to the Blythe Energy Facility I supply pipeline would be immediately adjacent to the Blythe Compressor Station. Metering for the alternative delivery points would occur at a new meter station located within the fenceline of the Blythe Compressor Station. The facilities associated with the Arrowhead Alternative are shown on Figure 3.2.5-1 and described in detail below.

The facilities associated with the Arrowhead Alternative include:

- Arrowhead Extension – 2.1 miles of 36-inch-diameter pipeline extending from MP 7.4 of the proposed B-Line to SoCal Gas' existing Blythe Compressor Station.

- Blythe-Arrowhead Meter Station and Pig Receiver – these facilities would occupy a 160-foot by 200-foot site within the fenced yard of the existing Blythe Compressor Station. The gas would be odorized before delivery into the SoCal Gas system at the existing odorant facilities within the Blythe Compressor Station.

- BEI Piping and Tap – 40 feet of 8-inch-diameter pipeline from the proposed Blythe-Arrowhead Meter Station to the existing Blythe Energy Facility I supply pipeline and a tap into the existing pipeline.

- Pig launcher, taps, and crossover piping to the existing A-Line and proposed B-Line – these facilities would be located in a 150-foot by 225-foot fenced yard in the northeast corner of the intersection of 18th Avenue and Arrowhead Boulevard.

As shown on Figure 3.2.5-1, the Arrowhead Extension would deviate from the proposed B-Line at MP 7.4 on 18th Avenue and go north on Arrowhead Boulevard. Between 18th Avenue and Seeley Avenue (MPs 0.0 to 1.0) the Arrowhead Extension route lies within the county road right-of-way. Continuing north between Seeley Avenue and 14th Avenue, two existing pipelines lie within the road right-of-way, leaving insufficient space for a third pipeline. As a result, the Arrowhead Extension would abut the eastern edge of the road right-of-way for just over 0.5 mile, cross to the west of the road and an adjacent PVID canal (C-O5 Canal) to avoid a residence, and continue north for the remaining 0.5 mile, abutting the base of the canal levee. Between MPs 1.0 and 2.0, the Arrowhead Extension would be on private property.

Between MPs 0.0 and 1.0, where the pipeline would be installed within or adjacent to Arrowhead Boulevard, rights to build and operate the pipeline within the county road right-of-way would be authorized under a franchise agreement with Riverside County. Franchise agreements do not typically grant a specific strip of land, but simply allow the pipeline to be installed and operated within the road right-of-way. North Baja would use a 60-foot-wide construction right-of-way to install the Arrowhead Extension between MPs 0.0 and 1.0. Urban construction techniques as described for construction in 18th Avenue would be used (see Section 2.3.2). Access to residents, farm workers, and emergency response vehicles would be maintained throughout construction; through traffic would be routed around segments of active construction. The measures for construction in or along public roadways that are included in North Baja's Traffic Management Plans for the proposed Project (see Appendix H) would be followed for construction of the Arrowhead Extension if the Arrowhead Alternative were adopted.

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Figure 3.2.5-1 Arrowhead Alternative

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Between MPs 1.0 and 2.0, where the Arrowhead Extension would be on new right-of-way, North Baja would use a 100-foot-wide construction right-of-way, of which a 35-foot-wide permanent right-of-way would be retained. Standard cross-country techniques as described in Section 2.3.1 would be used. Between MPs 1.0 and 1.5, the pipeline would be located in agricultural land adjacent to the east side of Arrowhead Boulevard. At approximately MP 1.5, the pipeline would be installed under Arrowhead Boulevard and the C-05 Canal using the bore method. From that point to a termination at MP 2.1 at the Blythe-Arrowhead Meter Station, the pipeline would be located adjacent to the west toe of the C-05 Canal levee. Direct construction impacts at any given location would last about 2 weeks. Typical right-of-way cross sections for the Arrowhead Extension are in Appendix C. The approximate locations and sizes of temporary extra workspaces that would be used for the Arrowhead Extension and associated aboveground facility sites are listed in Table D-3 in Appendix D.

If the Arrowhead Alternative were adopted, it would be constructed in 2007 as part of North Baja's Phase I construction activities. Construction would take 2 months for the majority of the activities; completion of the Blythe-Arrowhead Meter Station could take an additional 2 months.

Adoption of the Arrowhead Alternative would result in a net gain in the amount of facilities that would be constructed because the new modified connection point into the SoCal Gas system would not eliminate the need to connect with the existing Ehrenberg Compressor Station to allow for deliveries to El Paso and other markets outside of California, which is currently North Baja's contractual requirement. However, adoption of the Arrowhead Alternative would eliminate the proposed Blythe Meter Station at Riviera Drive, the SoCal Gas Interconnect at the Blythe Meter Station, the 0.6-mile-long BEI Lateral, and the odorant facility at the Ogilby Meter Station. Table 3.2.5-1 provides a comparison of the Arrowhead Alternative with the proposed Project facilities that would be eliminated if the Arrowhead Alternative were adopted (referred to in this analysis as the corresponding segment of the proposed Project).

As shown in Table 3.2.5-1, the Arrowhead Alternative would disturb 24.3 acres of land during construction (20.6 acres for the pipeline right-of-way, 2.0 acres for aboveground facilities, and 1.7 acres for temporary extra workspaces). Of this total, 6.2 acres of land would be permanently retained for the pipeline right-of-way (4.7 acres) and aboveground facilities (1.5 acres). In comparison, the corresponding segment of the proposed Project would disturb 9.0 acres of land during construction (4.4 acres for the pipeline right-of-way, 4.5 acres for aboveground facilities, and 0.1 acre for temporary extra workspaces), of which 5.2 acres of land would be permanently retained (0.7 acre for the pipeline right-of-way and 4.5 acres for aboveground facilities). The Arrowhead Alternative would impact 16.1 acres of agricultural land during construction; no agricultural land would be affected by construction of the corresponding segment of the proposed Project.

The Arrowhead Alternative would permanently convert 0.8 acre of agricultural land to utility use, whereas the corresponding segment of the proposed Project would permanently convert 4.5 acres of open land to utility use. Except for the new odorant facility at the existing Ogilby Meter Station, the corresponding segment of the proposed Project would be within the City of Blythe near existing and proposed residential development, while the Arrowhead Alternative would be in an agricultural area with only a few scattered residences and no proposed residential development. There would be 7 residences within the potential impact radius (PIR)[2] of the Arrowhead Alternative compared to 36 residences within the potential impact radius of the corresponding segment of the proposed Project. The minor visual impact associated with the Blythe Meter Station would be avoided by adoption of the Arrowhead Alternative.

[2] The potential impact radius is the radius of a circle within which the potential failure of a pipeline could have considerable impact on people or property.

TABLE 3.2.5-1

Environmental Comparison of the Arrowhead Alternative with the Corresponding Segment of the Proposed Project

Environmental Factor	Unit	Arrowhead Alternative	Corresponding Segment of the Proposed Project
Land Requirements			
Length of pipeline	Miles	2.1	0.6
Area disturbed during construction			
Pipeline right-of-way	Acres	20.6	4.4
Aboveground facilities	Acres	2.0	4.5 [a]
Temporary extra workspaces	Acres	1.7	0.1
Total	Acres	24.3	9.0
Area permanently retained			
Pipeline right-of-way	Acres	4.7	0.7
Aboveground facilities	Acres	1.5	4.5 [a]
Total	Acres	6.2	5.2
Biological resources			
Habitat types affected			
Creosote scrub	Acres	0.0	6.1
Agricultural	Acres	16.1	0.0
Urban (transportation)	Acres	8.2	2.9
Cultural resources			
Number of sites in area of potential effect	Number	6	0
Number of sites likely to be potentially eligible for listing on the National Register of Historic Places	Number	0 [b]	0
Land use and other resources			
Within existing rights-of-way	Miles	1.0	0.3
Within new right-of-way	Miles	1.1	0.3
Active agricultural land	Acres	16.1	0.0
Homes and businesses within 100 feet of construction work area	Number	0	2
Residential structures within potential impact radius	Number	7	36
Drains and canals crossed	Number	3[c]	0
Other Factors Associated with Aboveground facilities			
New odorant facility	Yes/No	No	Yes
Converted to utility use	Acres	0.8	4.5
Distance from meter station to nearest residences	Feet	1,200	1,000
Distance to proposed residential development	Feet	0 [d]	300
Zoned agricultural	Acres	0.0	0.0
Zoned rural residential	Acres	0.8	4.3

[a] Includes 4.3 acres for the Blythe Meter Station and 0.2 acre for the expansion of the site at the existing Ogilby Meter Station needed to install the odorant facility.

[b] Without testing complete.

[c] The C-05 Canal and two unnamed canals would be crossed. The C-05 Canal would be bored; the two unnamed canals would be open cut.

[d] There are no known proposed residential developments.

Based on North Baja's cultural resources surveys, there are six cultural resources along the Arrowhead Alternative compared to no cultural resources in the area of potential effect for the corresponding segment of the proposed Project. The six cultural resources along the Arrowhead Alternative have not been evaluated to determine eligibility for listing on the NRHP; however, North Baja would avoid impacts on these six cultural resources. Neither the Arrowhead Alternative nor the

corresponding segment of the proposed Project would affect wetlands, riparian resources, or native habitats. Impacts on special status species would be similar.

The Arrowhead Alternative would modify a small portion of the proposed Project by essentially exchanging certain aboveground facilities and short segments of pipeline. Because North Baja's negotiations with SoCal Gas regarding the delivery point to its system are still in progress, the Agency Staffs consider the Arrowhead Alternative to be a reasonable alternative and have not eliminated it from further consideration in this EIS/EIR. As a result, an analysis of the Arrowhead Alternative is included in the applicable resource discussions in Section 4.

3.2.6 Aboveground Facility Alternatives

As described in Section 2.1.2, the proposed Project would require new and modified aboveground facilities. The B-Line would require modifications at North Baja's existing Ehrenberg Compressor Station and an expansion of its existing Ogilby Meter Station to allow northbound flow of gas. Additionally, metering modifications inside the existing El Paso Meter Station at the Ehrenberg Compressor Station site would be necessary to allow LNG-source gas to be delivered into the El Paso system. North Baja would also construct one meter station, one odorant facility, two pig launchers, three pig receivers, and nine valves along the B-Line. The IID Lateral would require the construction of a tap and pig launcher at the tie-in with the B-Line, one meter station, one pig receiver, and four valves. The BEI Lateral would include associated metering and valving.

All of the proposed new and modified facilities are necessary to meet the purpose and need of the North Baja Pipeline Expansion Project. If the modifications at the existing Ehrenberg Compressor Station and El Paso and Ogilby Meter Stations are not made, the facilities would not be able to accommodate northbound flow of gas or deliver LNG-source gas to El Paso. Construction of these facilities other than at the existing facilities would require disturbance of previously undisturbed land and construction of additional pipeline facilities to connect them to the proposed pipeline. The alternative of creating new industrial sites would not be environmentally preferable to the proposed Project and thus was eliminated from further consideration.

The proposed Blythe Meter Station would be constructed and operated on a 4.3-acre site along Riviera Drive in Blythe at MP 0.5. This facility is needed to measure gas volumes delivered from the North Baja system into the SoCal Gas system and the BEI Lateral. As discussed in Section 3.2.5, North Baja is in negotiations regarding potential alternative delivery points. The alternative delivery point to the SoCal Gas system would be at SoCal Gas' existing Blythe Compressor Station at the intersection of 14th Avenue and Arrowhead Boulevard in Riverside County. The alternative delivery point to the Blythe Energy Facility I supply pipeline would be immediately adjacent to the Blythe Compressor Station. These alternative delivery points would eliminate the Blythe Meter Station at the proposed Riviera Drive site and add a new meter station (Blythe-Arrowhead Meter Station) within the fenced yard of SoCal Gas' Blythe Compressor Station (see Figure 3.2.5-1). The alternative, referred to as the Arrowhead Alternative, has not been eliminated from further consideration (see Section 3.2.5).

As discussed in Section 2.1.2, installation of an odorant facility would be necessary to odorize the natural gas before delivery into the SoCal Gas system; North Baja proposes to install this odorant facility at the existing Ogilby Meter Station. Construction of the odorant facility at the Ogilby Meter Station would require an approximate 0.2-acre expansion of the Ogilby Meter Station yard and approximately 400 feet of a new permanent 22-foot-wide access road to allow odorant supply trucks ingress and egress to the yard. The Agency Staffs evaluated the alternatives of installing the odorant facility at the proposed Blythe Meter Station site or constructing the facility on a new site at a different location. Construction of the odorant facility on the proposed Blythe Meter Station site would require an expansion of that site and

would place the facility in a residential area. Construction of the odorant facility at a different location would require disturbance of previously undisturbed land and the construction of additional pipeline facilities to connect it to the proposed pipeline. The alternatives of creating a new industrial site or installing the odorant facility in a residential area on an expanded Blythe Meter Station site would not be environmentally preferable to the proposed Project and were eliminated from further consideration. However, the Arrowhead Alternative, which has not been eliminated from further consideration, would eliminate the need for a new odorant facility because the gas would be odorized at SoCal Gas' existing odorant facilities within its Blythe Compressor Station (see Section 3.2.5).

Five of the nine valves along the B-Line would be collocated with existing valves at the existing aboveground facility sites; the remaining four valves would be collocated with the four existing valves along the A-Line. One of the valves associated with the IID Lateral would be collocated with the tap and pig launcher at the tie-in to the B-Line and the remaining three valves would be located along the pipeline route. The locations of these valves are dictated, in a general sense, by the class location of the area through which the pipeline passes, as required in Title 49 CFR Part 192. Although the specific location of a valve could be adjusted slightly, the valves cannot be eliminated or moved significantly. None of the proposed valve sites would be located in prime farmland or would affect wetlands, unique vegetation communities, critical wildlife habitat, or cultural resources. The alternative of relocating the valves to other sites would create new disturbance without providing any apparent environmental advantages and, therefore, was eliminated from further consideration.

Pig launchers and receivers would be collocated with other aboveground facilities; therefore, the alternative of relocating these facilities would create new disturbance without providing any apparent environmental advantages. For this reason, this alternative was eliminated from further consideration.

During the scoping process, comments were received from the ICAPCD and the Imperial County Board of Supervisors that the compressor station associated with the upstream facilities in Mexico should be located in the United States so that emissions can be mitigated appropriately. As discussed in Section 1.4, the upstream facilities are subject to the sovereign jurisdiction of another nation and there is no jurisdictional basis for the FERC, the CSLC, the BLM, or the BOR to approve, mitigate, or reject such facilities.

A scoping comment was also received suggesting that the impacts associated with the IID Lateral could be avoided by siting the IID El Centro Generating Station on the old Brock Research facility property in Imperial County. As discussed in Sections 1.1 and 2.1, the El Centro Generating Station is an existing facility that would be the delivery point for the IID Lateral.