

E. Comparison of Alternatives

This section summarizes and compares the environmental advantages and disadvantages of the Proposed Project and the alternatives evaluated in this EIR. This comparison is based on the assessment of environmental impacts of the Proposed Project and each alternative, as identified in Sections D.2 through D.14. Chapter C introduces and describes the alternatives considered in this EIR; Appendix 1 includes the Alternatives Screening Report, which documents all alternatives considered in the screening process.

This section also incorporates changes and additions made to alternative routes and mitigation measures after publication of the Draft EIR. As a result, comparisons of alternatives presented below include consideration of the following:

- Golf Course Drive Transition Station Alternative
- Trousdale Drive Transition Tower Alternatives (two possible locations)
- Glenview Drive Transition Tower Alternative
- Revised locations of transition facilities for the Partial Underground Alternative (Towers 6/36, 7/39, and 8/50)
- Route options along the Modified Underground Existing 230 kV Collocation Alternative
- A revised overhead crossing of Crystal Springs Dam in the PG&E Route Option 1B Alternative.

Section E.1 describes the methodology used for comparing alternatives. Section E.2 defines the environmentally superior alternative, based on comparison of each alternative with the Proposed Project. Section E.3 presents a comparison of the No Project Alternative with the alternative that is determined in Section E.2 to be environmentally superior.

E.1 Comparison Methodology

CEQA ~~requires identification of an environmentally superior alternative, but~~ does not provide specific direction regarding the methodology of alternatives comparison. Each project must be evaluated for the issues and impacts that are most important; this will vary depending on the project type and the environmental setting. Issue areas that are generally given more weight in comparing alternatives are those with long-term impacts (e.g., visual impacts and permanent loss of habitat or loss of use of recreational facilities). Impacts associated with construction (i.e., temporary or short-term) or those that are easily mitigable to less than significant levels are considered to be less important.

This comparison is designed to satisfy the requirements of CEQA Guidelines Section 15126.6(d), Evaluation of Alternatives, which states that:

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

If the environmentally superior alternative is the No Project Alternative, CEQA requires identification of an environmentally superior alternative among the other alternatives [CEQA Guidelines Section 15126.6(e)(2)].

The following methodology was used to compare alternatives in this EIR:

- **Step 1: Identification of Alternatives.** An alternatives screening process (described in Chapter C) was used to identify a number of alternatives to the Proposed Project. That screening process identified two transmission line alternatives in the southern segment, five transmission line alternatives in the northern segment, and two alternative transition station locations. A No Project Alternative was also identified. No other feasible alternatives meeting most of the project objectives were identified that would lessen or alleviate significant impacts.
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the proposed and the alternative route segments were identified in Sections D.2 through D.14, including the potential impacts of transmission line and substation construction and operation. Table E-1 summarizes the significant and unmitigable (Class I) impacts that could occur with the Proposed Project and alternatives.
- **Step 3: Comparison of Proposed Project with Alternatives.** The environmental impacts of the Proposed Project were compared to those of each alternative to determine the environmentally superior alternative. The environmentally superior alternative was then compared to the No Project Alternative.

Although this comparison focuses on the most important issue areas (e.g., land use, visual resources, biological resources, and recreation, with geology also a concern in fault zones), determining an environmentally superior alternative is difficult because of the many factors that must be balanced. In order to identify the environmentally superior alternative, the most important impacts in each issue area were identified and compared (see detailed comparison tables in Section E.2). Although this EIR identifies an environmentally superior alternative, it is possible that the ultimate decision-makers could balance the importance of each impact area differently and reach a different conclusion. The following comparison highlights situations where an alternative would create impacts in an issue area as an unintended consequence of avoiding impacts to another area.

E.2 Environmentally Superior Alternative

The comparison begins with a summary of the significant impacts that cannot be mitigated. Highlighting these areas of significant impacts identifies which alternatives would be capable of eliminating significant adverse environmental effects of the Proposed Project. This simplifies identification of the environmentally superior alternatives while considering all issue areas equally. Tables E-1a through E-1c show a summary of significant unmitigable (Class I) impacts by segment and alternative.

The following is a discussion of the advantages and disadvantages of each alternative in more detail and a determination of whether the Proposed Project or an alternative is considered to be environmentally superior within each area. The preferred alternative is identified for each issue area. In each of the following tables, an alternative shown as “preferred” may still have environmental effects, but when compared with the other alternatives, the environmental effects would be minimized with the preferred alternative.

Table E-1a. Southern Segment: Summary of Significant Unmitigable (Class I) Impacts by Alternative

Alternative	Significant Impacts (Class I)
Proposed Project, Overhead Segment	V-2: Key Viewpoint 1 – Edgewood County Park V-3: Key Viewpoint 2 – Interstate 280 Southbound V-9: Key Viewpoint 8 – Lexington Avenue V-12: Key Viewpoint 11 – Black Mountain Road V-13: Carolands Substation to transition station L-3: Conflict with visual resources policies B-1: Temporary and permanent loss of sensitive vegetation communities; serpentine grassland R-3: Operation-Related Impacts to Edgewood County Park and Preserve
Class I Impacts Eliminated or Created by Alternative to Overhead Segment	
PG&E Underground Route Option 1B	Eliminates V-2, V-3, V-9, V-12, V-13, B-1 , and R-3 Eliminates Proposed Project transition station impacts: L-6 (conflict with future development), V-20 (visual impact of transition station), and G-8 (active fault crossing) V-22: Visual Impact of overhead crossing of Crystal Springs Dam^a [Revised overhead crossing of the dam has no significant unmitigable impacts] R-3: Recreation/Operation-Related Impacts to Crystal Springs Dam^a
Partial Underground Alternative	Eliminates V-2, V-3, V-9, V-12, V-13, B-1, and R-3. V-23: Visual impact at Cañada Road between I-280 and Edgewood Road V-24: Visual impacts from at transition stations <u>7/39</u> V-25: Visual impact at crossing of I-280 at Tower 8/50 and Crystal Springs Golf Course

^a~~Crossing the Crystal Springs Dam with a submarine cable placed in the lakebed away from the dam could avoid these Class I impacts.~~

Note: No Class I impacts would occur in any of the following issue areas for any alternative: Cultural Resources, Hydrology/Water Quality, Public Health/Safety, Air Quality, Noise/Vibration, Transportation/Traffic, Socioeconomics.

E.2.1 Transmission Line Route Alternatives: Southern Segment

The Proposed Project was designed to follow an established utility corridor in the southern segment. Being in the established corridor and using the proposed overhead transmission line design would minimize the duration and intensity of construction-related impacts. Two ~~complete underground~~ alternatives are available for the entire Southern Segment, mainly to minimize the aesthetic effects of the proposed transmission line: PG&E’s Route Option 1B and the Partial Underground Alternative. In addition, the Golf Course Drive Transition Station and the Trousdale Drive Transition Towers allow creation of hybrid alternatives.

Table E-2 compares the Southern Segment alternatives with the Proposed Project for each environmental issue area. Note that comparison of transition stations near San Bruno Avenue is presented in Section E.2.2.1 below.

PG&E’s Route Option 1B and the Partial Underground Alternatives would both generally require more work to install in comparison to the Proposed Project because of the underground portions, which means that construction-related impacts would be more intense. Because of the trenching and ground disturbance required for underground construction, these alternatives would increase impacts to cultural resources, water quality, air quality, noise, and traffic during short-term construction while substantially reducing long-term land use conflicts and impacts to visual and recreational resources. Note that while EMF is not considered in the comparison because it is not a CEQA issue, EMF concerns would be of least concern for the Route Option 1B Alternative.

Table E-1b. Alternatives to Proposed Transition Station: Summary of Significant Unmitigable (Class I) Impacts by Alternative

Alternative	Significant Impacts (Class I)	
Proposed Project, Transition Station	L-6: Conflict with planned future development at transition station site ^a V-20: Substantial introduction of industrial character, structural prominence, and view blockage when viewed from Skyline Boulevard, San Bruno Avenue, and the Sky Crest Center ^a G-8: Surface fault rupture at crossings of active and potentially active fault traces; proposed transition station	
Class I Impacts Eliminated or Created by Alternative to Transition Station		
West of Skyline Transition Station	With proposed underground route	Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces
	With Westborough Blvd. underground route	Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces
	With Sneath Lane underground route	Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces
Sneath Lane Transition Station	With proposed underground route	Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces
	With Westborough Blvd. underground route	Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces
	With Sneath Lane underground route	Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active and potentially active fault traces
<u>Glenview Drive Transition Tower</u>	<u>With proposed underground route</u>	<u>Eliminates L-6 and V-20. Seismic risk similar to proposed transition station (less than significant with mitigation).</u>
	<u>With Westborough Blvd. underground route</u>	<u>Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active San Andreas Fault trace</u>
	<u>With Sneath Lane underground route</u>	<u>Eliminates L-6 and V-20. G-8: Surface fault rupture at crossings of active San Andreas Fault trace</u>

^a Relocation of the transition station with the Transition Station Alternatives or selection of Route Option 1B for the southern segment could avoid these Class I impacts.

Note: No Class I impacts would occur in any of the following issue areas for any alternative: Cultural, Hydrology/Water Quality, Public Health/Safety, Air Quality, Noise/Vibration, Transportation/Traffic, Socioeconomics.

Table E-1bb. Other Transition Stations: Summary of Significant Unmitigable (Class I) Impacts by Alternative

Alternative	Purpose of Alternative	Significant Impacts (Class I)
<u>Golf Course Drive Transition Station</u>	<u>Creates hybrid among Proposed, Route Option 1B, and Partial Underground routes</u>	<u>No Class I impacts</u>
<u>Trousdale Drive Transition Towers</u>	<u>Creates hybrid between Proposed or Partial Underground routes and Route Option 1B</u>	<u>No Class I impacts</u>

Table E-1c. Northern Segment: Summary of Significant Unmitigable (Class I) Impacts by Alternative

Alternative	Significant Impacts (Class I)
Proposed Project, Underground Segment	Does not create any Class I impacts.
Class I Impacts Eliminated or Created by Alternative to Underground Segment	
Cherry Avenue Alternative	Does not create or eliminate any Class I impacts.
Modified Underground Existing 230 kV Collocation Alternative and New South San Francisco Segment	Does not create or eliminate any Class I impacts unless connected to PG&E Option 1B (which eliminates L-6 <u>and</u> V-20, G-8)
PG&E's Route Option 4B: East Market St Alternative	Does not create or eliminate any Class I impacts.
Junipero Serra Alternative	G-8: Surface fault rupture at crossings of active and potentially active fault traces; Skyline Blvd and Westborough Blvd. Used to avoid L-6 and V-20.
Class I Impacts Eliminated or Created by No Project Alternative	
No Project Alternative	Eliminates all Class I impacts related to Proposed Project. Creates Class I impact for Public Services and Utilities due to service disruptions.

Note: No Class I impacts would occur in any of the following issue areas for any alternative: Cultural, Hydrology/Water Quality, Public Health/Safety, Air Quality, Noise/Vibration, Transportation/Traffic, Socioeconomics.

Either of these two Southern Segment alternatives would eliminate multiple permanent and significant visual impacts of the Proposed Project, as shown in Table E-1a. ~~Comparing the Route Option 1B Alternative with the Partial Underground Alternative indicates that the potentially significant impacts to visual, cultural, and recreation resources could be avoided by selecting the Route Option 1B Alternative with a submarine cable for crossing the Crystal Springs Dam. The Partial Underground Alternative is less desirable because of significant unmitigable visual impacts (along Cañada Road near Edgewood Road, at two transition structure locations, and at the I-280 crossing south of Carolands Substation).~~

Route Option 1B includes six options for crossing Crystal Springs Dam, as described in Appendix 1, Section 4.2.1. The revised overhead crossing, the "top of the dam," or with a the submarine cable options (with implementation of relevant mitigation presented in Section D) are the preferred crossing methods alternative because it they would minimize permanent impacts to the most relevant areas of land use, visual resources, and biology.

Table E-2. Southern Segment Route Comparisons: Proposed Project vs. PG&E Underground Route Option 1B and Partial Underground Alternative

Issue Area	Proposed Project, Overhead Segment	PG&E Route Option 1B	Partial Underground Alternative
Land Use	Most likely to cause permanent conflicts with adopted biology and visual quality policies	Preferred because no transition station is needed and fewer policy conflicts would occur.	Likely to cause some permanent policy conflicts, although reduces impacts to open spaces
Visual Resources	Greatest permanent visual impacts along I-280 and residential areas	Preferred, with any although with overhead crossing of Crystal Springs Dam because new visual impacts would be minimal would permanently introduce transition stations (avoided if a submarine cable is used)	Greater permanent visual impacts along <u>Cañada Road, at Transition Tower 7/39, and in</u> Crystal Springs Golf Course, although eliminates visual impacts for residential areas east of I-280

Table E-2. **Southern Segment Route Comparisons:** Proposed Project vs. PG&E Underground Route Option 1B and Partial Underground Alternative

Issue Area	Proposed Project, Overhead Segment	PG&E Route Option 1B	Partial Underground Alternative
Biological Resources	Most construction in sensitive areas and increased permanent disruption of sensitive areas	Preferred because construction would be in roadways, minimizing habitat disturbance	Underground construction in a sensitive area, although would eliminate new towers and permanent disruptions within Edgewood Park and the Pulgas Ridge Preserve and adjacent to Burlingame
Cultural Resources	Preferred because ground disturbance would be least	Most potential for construction at historic Crystal Springs Dam and along Trousdale Drive and most risk from underground construction, but impacts near the dam could be avoided with a submarine cable	Requires underground construction that would increase the risk of encountering previously unknown cultural resources
Geology	High exposure to San Andreas Fault <u>near San Bruno Avenue</u>	Preferred because <u>San Andreas Fault Zone in southern 2 miles is in less active segment and it avoids active</u> San Andreas Fault crossing near San Bruno Avenue	High exposure to San Andreas Fault <u>near San Bruno Avenue</u>
Hydrology and Water Quality	Preferred because construction disturbance would be least	More construction work across watercourses, although minimal disturbance to Peninsula Watershed	More construction work across watercourses and near San Andreas Lake
Public Health and Safety	Preferred because route is in undeveloped areas with minimal existing contamination	Most likely to encounter contaminated areas during underground construction	More likely to encounter contaminated areas during underground construction
Recreation	Permanent degradation of recreation at Edgewood County Park and Preserve	Permanent degradation of recreational experience with overhead crossing of Crystal Springs Dam (avoided with a submarine cable); longest duration of construction disruption in Cañada Road	Preferred because construction and operation would avoid <u>Edgewood Park and Pulgas Ridge Preserve (though impacts would be created along San Andreas Trail) highest-use recreation areas</u>
Air Quality	Preferred because construction disturbance would be least	Longest duration of construction and underground work	Longer duration of construction and underground work
Noise and Vibration	Preferred because construction disturbance would be least	Longest duration of construction and underground work	Longer duration of construction and underground work
Transportation and Traffic	Preferred because construction would affect fewest roadways	Most construction in roadways	Some construction along roadways
Socioeconomics	No preference	No preference	No preference
Public Services and Utilities	Preferred because of low likelihood of disrupting utilities during construction	Most likely to disrupt services during underground work	More likely to disrupt services during underground work

E.2.2 Transmission Line Route Alternatives: Northern Segment

E.2.2.1 Transition Station Alternatives

The Proposed Project would require a transition station where the overhead southern segment would connect to the underground line. ~~Two-Three~~ transition station alternatives are considered: the West of Skyline Transition Station, ~~and the Sneath Lane Transition Station,~~ and the Glenview Drive Transition Tower. The most relevant issues for the transition station alternatives are potential land use conflicts, permanent

visual and recreation impacts, and minimizing exposure to geologic hazards. Table E-3 compares the three alternative locations for the transition station. Note that selecting Route Option 1B for the underground segment would eliminate the transition station.

The Proposed Project would permanently conflict with planned land uses for recreational purposes and degrade visual resources. These impacts could be avoided with either alternative transition station site, but the ~~Sneath Lane Transition Station~~ Glenview Drive Transition Tower would be preferred because it would simultaneously minimize ~~land use~~ biology, visual, and recreation impacts, without creating seismic hazards greater than those associated with the proposed site. While the Sneath Lane Transition Station site is preferred in the issue areas of land use, visual resources, cultural resources, air quality, and noise, the Glenview Drive Transition Tower would avoid the significant seismic risk created by an underground line leaving the Sneath Lane Station. If the improvements to land use, visual, biology, and recreation are not sufficient to override the permanent seismic hazards related to the Sneath Lane site, then the location of the transition station under the Proposed Project is preferred because it minimizes exposure of the project to seismic hazards. Aside from the seismic hazard concern, the Sneath Lane site would be preferred.

Table E-3. Comparison of Three Transition Station Alternatives

Issue Area	Proposed Project Transition Station	West of Skyline Boulevard Transition Station	Sneath Lane Transition Station	<u>Glenview Drive Transition Tower</u>
Land Use	Most likely to cause permanent policy conflicts and conflicts with land use designation and planned development	Could cause conflicts for policies for biological resources or tree ordinances during construction	Preferred because of existing compatible adjacent land use (substation)	<u>Utility land use compatible with adjacent water tank site</u>
Visual	Most visually prominent location with permanent public exposure	More visually prominent because site is not adjacent to existing development	Preferred because of adjacent industrial facility (substation)	<u>More prominent than Sneath Lane but preferred over proposed and West of Skyline because of adjacent industrial facility (water tank)</u>
Biology	Preferred , because station site is disturbed and unvegetated	Station site is presently undisturbed and vegetated	Although station site is disturbed and unvegetated, additional overhead towers would be needed to reach Sneath Lane, increasing permanent bird collision hazards	Preferred , because <u>station site is disturbed and unvegetated</u>
Cultural	Preferred because least underground construction would be required	More underground construction work needed for connections	More underground construction work needed for connections	<u>Minimal underground construction required</u>
Geology	Preferred because <u>site is west of main San Andreas Fault trace of shortest exposure of underground cable to San Andreas Fault Zone</u>	Permanently exposed to seismic hazards by being located directly on active traces of San Andreas Fault	Permanently exposed to seismic hazards by being located <u>west of immediately adjacent to</u> active traces of San Andreas Fault, <u>similar to Proposed Project, but also forces underground crossing of fault</u>	Preferred because <u>site is east of main San Andreas Fault trace</u>

Table E-3. Comparison of Three Transition Station Alternatives

Issue Area	Proposed Project Transition Station	West of Skyline Boulevard Transition Station	Sneath Lane Transition Station	Glenview Drive Transition Tower
Hydrology and Water Quality	Preferred because construction in Watershed would be minimized	More construction work occurs in the Peninsula Watershed	Additional construction work would be needed in the Peninsula Watershed to reach Sneath Lane	Preferred because construction in Watershed would be minimized
Public Health	Construction could encounter contaminated areas within 0.25 miles of site but none are recorded from two closed gas stations across the street	Preferred because of few known contaminated sites	Construction work occurs near residential area; 3 contaminated sites identified.	Preferred because of few known contaminated sites
Recreation	Permanently precludes use of site for trailhead parking	Introduces permanent industrial structure adjacent to San Andreas Trail	Preferred because no recreational facilities would be affected	No recreational facilities directly affected; visible from San Andreas Trail
Air Quality	Construction work occurs near homes	Preferred because construction would be farthest from receptors	Construction work occurs near school and homes	Construction work occurs near one apartment building
Noise and Vibration	Construction work occurs near homes	Preferred because construction would be farthest from receptors	Construction work occurs near school and homes	Construction work occurs near one apartment building
Transportation and Traffic	No preference	No preference	No preference	No preference; site is outside of potential Hwy 35 expansion area
Socioeconomics	No preference	No preference	No preference	No preference
Public Services and Utilities	No preference	No preference	No preference	No preference

E.2.2.2 West of Skyline Boulevard Transition Station Alternative with Three Underground Routes

The West of Skyline Transition Station could connect to any of three different underground transmission line routes: the proposed route, the Sneath Lane route, or the Westborough Boulevard route. Table E-4 compares the three alternative underground routes for the West of Skyline Boulevard Transition Station Alternative. From the West of Skyline Transition Station, the proposed underground route is preferred because it would minimize exposure of the project to permanent seismic hazards without creating new significant impacts.

Table E-4. Comparison of Three Underground Route Alternatives for West of Skyline Boulevard Transition Station

Issue Area	Proposed Project, Underground Route	Westborough Boulevard Underground Route	Sneath Lane Underground Route
Land Use	Most construction work near residential and commercial uses	Preferred because of less business and residential land use	More construction work near schools and homes
Visual	No preference	No preference	No preference
Biology	No preference	No preference	No preference
Cultural	Some likelihood of encountering cultural sites during construction	Preferred because of reduced likelihood of encountering cultural resources	More likelihood of encountering cultural sites during construction

Table E-4. Comparison of Three Underground Route Alternatives for West of Skyline Boulevard Transition Station

Issue Area	Proposed Project, Underground Route	Westborough Boulevard Underground Route	Sneath Lane Underground Route
Geology	Preferred , although requires an underground cable crossing of the entire fault zone across Skyline Blvd.	Permanently exposed to seismic hazards by forcing underground cable in fault zone along Skyline Blvd and Westborough Blvd	Permanently exposed to seismic hazards by forcing underground cable in fault zone along Skyline Blvd and Sneath Lane
Hydrology and Water Quality	Preferred because of fewer stream crossings.	Increases potential impacts from additional stream crossing	Additional underground work to reach Sneath Lane increases potential impacts
Public Health	More potential for encountering contaminated sites during construction	Some potential for encountering contaminated sites during construction	Preferred because of low number of recorded contaminated sites
Recreation	Requires more construction work near San Andreas Trail	Requires construction work near Westborough Park and California Golf Club	Preferred because of avoidance of recreational facilities
Air Quality	No preference	No preference	No preference
Noise and Vibration	No preference	No preference	No preference
Transportation and Traffic	More underground work in roads; recommended mitigation would avoid grade separation project	Most underground work in roads; avoids grade separation project at San Bruno and Huntington Avenues	Preferred because of shortest roadway disturbance and avoidance of grade separation project at San Bruno and Huntington Avenues
Socioeconomics	No preference	No preference	No preference
Public Services and Utilities	Most potential to disrupt services during construction because of work in BART ROW	Preferred , because of avoiding BART ROW	Some potential to disrupt services during construction, although would reduce distance in BART ROW

E.2.2.3 Sneath Lane Transition Station with Three Underground Routes

As with the West of Skyline Transition Station, the Sneath Lane Transition Station Alternative would also have three alternative underground routes for departing the transition station. Table E-5 compares the three alternative underground routes for the Sneath Lane Transition Station Alternative. From the Sneath Lane Transition Station alternative, the Sneath Lane Underground Route is preferred because it minimizes exposure of the project to permanent seismic hazards without creating new significant impacts.

Table E-5. Comparison of Three Underground Route Alternatives for Sneath Lane Transition Station

Issue Area	Proposed Project, Underground Route	Westborough Boulevard Underground Route	Sneath Lane Underground Route
Land Use	Most construction work near residential and commercial uses	Preferred because of less business and residential land use	More construction work near schools and homes
Visual	No preference	No preference	No preference
Biology	No preference	No preference	No preference
Cultural	Some likelihood of encountering cultural sites during construction	Preferred because of reduced likelihood of encountering resources	More likelihood of encountering cultural sites during construction
Geology	Permanently exposed to seismic hazards by installing underground cable along fault zone along Skyline Blvd	Permanently exposed to seismic hazards by installing underground cable in fault zone along Skyline Blvd. and Westborough Blvd.	Preferred , although requires installation of underground cable in fault zone across Skyline Blvd. and along Sneath Lane

Table E-5. Comparison of Three Underground Route Alternatives for Sneath Lane Transition Station

Issue Area	Proposed Project, Underground Route	Westborough Boulevard Underground Route	Sneath Lane Underground Route
Hydrology and Water Quality	Additional underground work from Sneath Lane increases potential impacts	Increases potential impacts from additional stream crossing	Preferred , although increases potential impacts from additional stream crossing
Public Health	More potential for encountering contaminated sites during construction	Some potential for encountering contaminated sites during construction	Preferred because of low number or recorded contaminated sites
Recreation	Requires some construction work near San Andreas Trail	Requires construction work near Westborough Park and California Golf Club	Preferred because of avoidance of more recreational facilities
Air Quality	No preference	No preference	No preference
Noise and Vibration	No preference	No preference	No preference
Transportation and Traffic	More underground work in roads	Most underground work in roads	Preferred because of shortest roadway disturbance
Socioeconomics	No preference	No preference	No preference
Public Services and Utilities	Most potential to disrupt services during construction because of work in Skyline Blvd and BART ROW	Preferred , because of avoiding BART ROW	Some potential to disrupt services during construction, although would reduce distance in BART ROW

E.2.2.4 Proposed Project vs. Cherry Avenue Alternative

The 0.5-mile Cherry Avenue Alternative for the Proposed Project would avoid work near commercial properties along a portion of San Bruno Avenue and at a proposed grade separation project in the City of San Bruno. Table E-6 compares this alternative route with the Proposed Project for each environmental issue area. Note that selecting Route Option 1B for the underground segment would eliminate this option because Route Option 1B would terminate at El Camino Real and San Bruno Avenue.

The Cherry Avenue Alternative is preferred because it would reduce short-term, construction-related impacts to adjacent land uses, and it would minimize the chance of disrupting public services, utilities, and other projects in the City of San Bruno during construction.

Table E-6. Proposed Project vs. Cherry Avenue Alternative

Issue Area	Proposed Project, Underground Route	Cherry Avenue Alternative
Land Use	Most construction work near residential and commercial uses	Preferred because of less business and residential land use
Visual	No preference	No preference
Biology	No preference	No preference
Cultural	Preferred because of reduced likelihood of encountering resources	More likely to encounter cultural sites near San Bruno Creek during construction
Geology	Requires more construction work in soft sediments	Preferred because of less construction in soft soils
Hydrology and Water Quality	No preference	No preference
Public Health	More likely to encounter contaminated sites during construction	Preferred because of lower number of recorded contaminated sites
Recreation	Preferred because of avoidance of more recreational facilities	More construction work near Commodore Park

Air Quality	Preferred because construction would be farthest from receptors	More construction work near residential uses, although avoids commercial uses
Noise and Vibration	Preferred because construction would be farthest from receptors	More construction work near residential uses, although avoids commercial uses
Transportation and Traffic	Could require construction work in vicinity of planned grade separation project	Preferred because of shortest roadway disturbance
Socioeconomics	No preference	No preference
Public Services and Utilities	Requires construction work in San Bruno Avenue and Huntington Avenue intersection near many utility systems	Preferred because of fewer underground utilities

E.2.2.5 Proposed Project vs. Modified Underground Existing 230 kV Collocation Alternative and New South San Francisco Segment

The Modified Underground Existing 230 kV Collocation Alternative, as opposed to the Proposed Project's underground segment, would avoid work ~~in-adjacent to many~~ residential areas and schools, ~~and on San Bruno Mountain in Guadalupe Canyon Parkway~~ because it would be located in primarily commercial and industrial areas. This alternative would also result in ~~nearly~~ 4 miles less underground construction than the Proposed Project. However, it would require construction through several areas of contamination, and because construction would occur nearer to the San Francisco Bay, it would increase the likelihood of water quality effects on the Bay. Table E-7 compares this alternative route with the Proposed Project for each environmental issue area.

Six route options (Route Options A through F) are presented for this alternative, as defined in Appendix 1, Section 4.3.4. Route Options A (avoiding Produce Boulevard), D (avoiding the west side loading dock area of Van Waters and Rodgers Road), E (use of Veterans Boulevard to avoid a contaminated site), and F (avoiding use of the entrance ramp to Van Waters and Rodgers Road) are strongly preferred in most issue areas over the originally defined route. There is no preference between Route Options B and C (if adopted, these route segments should be selected based on minimizing disturbance of the landfill cap, based on discussions between PG&E, the City of South San Francisco, and landowners).

As illustrated in Table E-7, the alternative would have fewer impacts in the issue areas of land use, geology, noise, recreation, air quality, transportation, and public services. The Proposed Project segment would have fewer impacts in public health (contaminated sites), cultural resources, and water quality. Neither the Modified Underground Existing 230 kV Alternative nor the underground segment of the Proposed Project would have any significant, unmitigable environmental impacts. All impacts for both routes would be temporary and for the duration of construction only. Therefore, the Modified Underground Existing 230 kV alternative (with Route Options A, D, E, and F) is found to have an overall comparable level of environmental impacts when compared to the Proposed Project's underground segment.

~~The Modified Underground Existing 230 kV alternative is preferred over the proposed underground route because it would substantially reduce short term, construction-related impacts to residences and commercial properties, recreational facilities, and transportation facilities.~~

Table E-7. Proposed Project vs. Modified Underground Existing 230 kV Collocation Alternative

Issue Area	Proposed Project, Underground Route	Modified Underground Existing 230 kV Collocation Alternative
Land Use	At least 6 months of construction adjacent to 120 residences (in 3 areas) and several apartment buildings and 5 schools. Requires more construction work in residential and commercial areas	Preferred because construction would affect very few residences and no schools. Mitigation Measure T-9a would eliminate impacts to residences. Preferred because most land uses are industrial and route is shorter
Visual	No preference	No preference
Biology	No preference	No preference
Cultural	Preferred because fewer cultural resources are anticipated	Requires more work in Bay Shore area and near pre-historic resources east of San Bruno Mountain during construction
Geology	Requires more excavation into native undisturbed soils and potentially fossil-bearing rock during construction	Preferred because of soil conditions
Hydrology and Water Quality	Preferred because of distance to Bay for sedimentation impacts	Requires directional drilling in streams near San Francisco Bay during construction
Public Health	Preferred because of fewer known contaminated sites; only one site likely to affect construction Preferred because of fewer known contaminated sites	High likelihood of encountering contaminated soils and groundwater during construction through and near 3 leaking underground tanks and two Brownfield sites, as well as construction through capped landfill. Higher likelihood of encountering contaminated sites and contaminated groundwater during construction
Recreation	Forces construction work in Hillside Blvd Bikeway and work near many other recreational facilities, especially in San Bruno Mountain State and County Park	Preferred because of fewer recreational facilities affected
Air Quality	Requires more construction work in residential areas	Preferred because construction would be farthest from receptors
Noise and Vibration	At least 6 months of construction adjacent to 120 residences and several apartment buildings and 5 schools. Requires more construction work in residential areas	Preferred because construction would affect very few residences and no schools. Mitigation Measure T-9a would eliminate impacts to residences. Preferred because construction would be farthest from receptors
Transportation and Traffic	Requires 7.8 miles of construction in roads Requires four additional miles of construction work in roads	Preferred – 4.8 miles of construction in roads Preferred because of shorter overall construction in roads
Socioeconomics	No preference	No preference
Public Services and Utilities	More potential for temporarily restricted access to public facilities (schools, parks, and hospitals) during construction	Preferred because of fewer public facilities

E.2.2.6 Proposed Project vs. PG&E’s Route Option 4B: East Market Street Alternative

The 0.6-mile Route Option 4B: East Market Street Alternative would avoid the dense residential neighborhoods along Orange and Hoffman Streets in the City of Daly City. Table E-8 compares this alternative with the Proposed Project for each environmental issue area. The Route Option 4B alternative is preferred because it would reduce short-term, construction-related impacts to residences.

Table E-8. Proposed Project vs. PG&E Route Option 4B: East Market Street Alternative

Issue Area	Proposed Project, Underground Route	Route Option 4B: East Market Street Alternative
Land Use	Requires more construction work near residences	Preferred because of avoidance of residential area
Visual	No preference	No preference
Biology	No preference	No preference
Cultural	Requires construction work near Mount Olivet Cemetery	Preferred because of fewer known cultural resources
Geology	Preferred because of anticipated soil and groundwater conditions	More likely to encounter high groundwater during construction
Hydrology and Water Quality	No preference	No preference
Public Health	Preferred because of fewer known contaminated sites	More likely to encounter unknown contamination during construction
Recreation	No preference	No preference
Air Quality	Requires more construction work near residences	Preferred because of avoidance of residential receptors
Noise and Vibration	Requires more construction work near residences	Preferred because of avoidance of residential receptors
Transportation and Traffic	Preferred because of use of less traveled roadways	Requires construction work in major arterials
Socioeconomics	No preference	No preference
Public Services and Utilities	Preferred because of avoidance of public facilities	More potential for temporarily restricted access to Susan B. Anthony school during construction

E.2.2.7 Proposed Project vs. Junipero Serra Alternative

The Junipero Serra Alternative would avoid work in the BART ROW through San Bruno and South San Francisco, thus avoiding many residential areas, schools, and parks. Although it would avoid these sensitive land uses, this route would cross longer sections of the active San Andreas Fault traces because it would travel along Skyline Boulevard to Westborough Boulevard before connecting with Junipero Serra. Table E-9 compares this alternative with the Proposed Project for each environmental issue area. Note that selecting Route Option 1B for the underground segment would eliminate this option because Route Option 1B would terminate at El Camino Real and San Bruno Avenue.

The Junipero Serra Alternative would minimize construction impacts by avoiding dense residential areas and schools that would otherwise be encountered along the route of the Proposed Project. It would, however, cause a long-term and significant unmitigable impact related to geology. The Proposed Project is preferred because the Junipero Serra Alternative would increase permanent exposure of the project to seismic hazards.

Table E-9. Proposed Project vs. Junipero Serra Alternative

Issue Area	Proposed Project, Underground Route	Junipero Serra Alternative
Land Use	Requires more construction work in residential and commercial areas	Preferred because of fewer commercial and residential land uses
Visual	No preference	No preference
Biology	No preference	No preference
Cultural	Requires construction work near many more historic sites and water crossings and requires archaeological monitoring	Preferred because of lower likelihood of cultural resources

Table E-9. Proposed Project vs. Junipero Serra Alternative

Issue Area	Proposed Project, Underground Route	Junipero Serra Alternative
Geology	Preferred because of less exposure to San Andreas Fault Zone	Forces increased permanent exposure to seismic hazards by requiring connection with underground route along northern Skyline Blvd and Westborough Blvd
Hydrology and Water Quality	Requires more construction work across watercourses	Preferred because of fewer water crossings
Public Health	Requires construction work near more contaminated sites	Preferred because of fewer known contaminated sites
Recreation	Forces construction work in Hillside Blvd Bikeway	Preferred because of fewer recreational facilities
Air Quality	Requires more construction work in residential areas and near schools	Preferred because of reduced exposure of residences and schools
Noise and Vibration	Requires more construction work in residential areas and near schools	Preferred because of reduced exposure of residences and schools
Transportation and Traffic	Preferred because of less construction in roadways	Requires two additional miles of construction work in roads
Socioeconomics	No preference	No preference
Public Services and Utilities	More potential for temporarily restricted access to public facilities (schools, parks, and hospitals), and more likely to disrupt utilities during construction	Preferred because of fewer public facilities nearby

E.2.3 Definition of Environmentally Superior Alternative

The conclusions in Sections [E.2.1](#) and [E.2.2](#) for various alternatives require that additional decisions be made to assemble a transmission line route that connects the Jefferson and Martin Substations. The following discussion identifies the ~~two~~ environmentally superior alternatives for the entire project route: the Underground Route Option 1B Alternative within the southern segment, and both the [Proposed Project and the Modified Underground Existing 230 kV Collocation Alternative](#) in the northern segment. The route in the area where these routes would connect (at San Bruno Avenue and El Camino Real) could be modified with implementation of Mitigation Measure T-9a, which presents a route option continuing north on El Camino Real past San Bruno Avenue, then turning east on Sneath Lane/Tanforan Drive. This The Environmentally Superior routes areis illustrated in Figure E-1.

Conclusion for Southern Segment and Transition Station Alternatives

Table E-1a shows that ~~all two of the~~ southern segment routes (~~including~~ the Proposed Project, ~~the PG&E Route Option 1B,~~ and the Partial Underground Alternative) would cause significant, unavoidable impacts to visual resources, land use, and recreation and biological resources. The severity of impacts to these issue areas can be dramatically reduced with selection of the Underground Route Option 1B because this alternative would largely be underneath paved roadways. This all underground route creates no significant unmitigable impacts, and includes several options for crossing Crystal Springs Dam, including a revised overhead crossing, that also avoid creation of significant impacts. The significant impacts to recreation and visual resources with this alternative result from the potential overhead crossing of Crystal Springs Dam. However, these impacts occurring in one specific area would be offset by the benefits of substantially reducing overall impacts to visual and biological resources. Furthermore, Route Option 1B could be mitigated (as an option of Mitigation Measure C 4a) to avoid recreation and visual impacts at the Crystal Springs Dam crossing by designing the transmission line with a submarine cable in the lakebed away from the dam.

The Partial Underground Alternative is preferred over the Proposed Project, but not in comparison to Route Option 1B because, similar to the Proposed Project, multiple significant impacts to visual resources would occur under that alternative. Underground Route Option 1B is the environmentally superior alternative for the southern segment.

If Route Option 1B is not selected for the southern segment, Tables E-1b and E-3 show that land use and visual impacts of the transition station must be balanced with impacts caused by seismic hazards. Because safety and reliability are core objectives of the project, as described in Section A, minimizing significant impacts from exposure to seismic hazards should be achieved while minimizing land use and visual impacts. If Route Option 1B is not selected for the southern segment, the Glenview Drive Transition Tower to the proposed route in San Bruno Avenue is preferred over the other transition sites because it avoids an underground crossing of the San Andreas Fault, is less visible than other alternatives, and avoids land use conflicts. From San Bruno Avenue, two options are available, depending on local jurisdiction preference as to whether the grade separation project at San Bruno Avenue and Huntington Avenue should be avoided or engineered (as defined in Mitigation Measures T-9a). Either the Cherry Avenue/Sneath Lane/Tanforan Drive route, or the proposed route to Huntington Avenue could be used. Sneath Lane Transition Station with the Sneath Lane underground route should be selected if Route Option 1B is not selected for the southern segment. This selection of the Glenview Drive Transition Tower would eliminate land use and visual impacts associated with the proposed transition station while minimizing impacts related to seismic hazards. If Route Option 1B is not selected, selecting the Sneath Lane Transition Station would require a Statement of Overriding Considerations for geology impacts.

~~The dilemma of selecting~~Selection of a transition station alternative ~~can be avoided~~is not required if the entire Route Option 1B Alternative is selected, because this all-underground alternative would require no transition station. Eliminating the transition station would eliminate significant, unavoidable land use, visual, and geology impacts without creating any new impact. The ability of the Route Option 1B to preclude the need for any transition station and the need for a Statement of Overriding Considerations for geology is another notable benefit of that alternative.

Selection of Route Option 1B would create no unmitigable significant impacts, and thus, no require a Statement of Overriding Considerations would be required. ~~for significant impacts to visual resources and recreation only in the vicinity of the Crystal Springs Dam and only if the submarine cable option does not replace the overhead transmission line.~~

Route Option 1B Hybrid Alternatives with Partial Underground Alternative and Proposed Project

The all-underground PG&E Route Option 1B Alternative is considered to be environmentally superior overall, as described above. However, two alternative transition stations considered in this Final EIR would allow the two southern segment alternatives and the Proposed Project to be used in any combination, as described in more detail below.

Golf Course Drive Transition Station Alternative. This station, west of the Carolands Substation, could be used to create a hybrid of the Route Option 1B and either the Proposed Project or the Partial Underground Alternative. The route could use the southernmost 8 miles of Route Option 1B in Skyline Boulevard from the Jefferson Substation to Golf Course Road, minimizing visual and biological impacts because the route would be entirely underground and within roadways. Then rather than turning east in Golf Course Road (under the freeway), the hybrid alternative the 230 kV line would continue north onto Golf Course Drive to just north of with the intersection of Skyline Boulevard and Golf Course

Road. From the transition station, the line would be overhead west of the I-280 freeway, following the route of the Partial Underground Alternative or the Proposed Project. This option would eliminate the portion of Route Option 1B route north of Hayne Road (avoiding effects on the residential areas along Skyline Boulevard and Trousdale Drive, as well as businesses and traffic on El Camino Real).

Trousdale Drive Transition Tower Alternatives. The alternative transition towers at the west end of Trousdale Drive could have two purposes: first, as a means of connecting the southern portion of the Proposed Project with Route Option 1B's Trousdale Drive and El Camino Real segment, and second, to connect the southern portion of the Partial Underground Alternative with Route Option 1B. These options would eliminate the need for a transition station at San Bruno Avenue (any of the four options identified there and compared in Section E.2.2.1), because the 230 kV line would be installed along Trousdale Drive and El Camino Real.

The Trousdale Drive Transition Tower Alternatives would also allow use of the Route Option 1B Alternative from the south, connecting with the Partial Underground Alternative or Proposed Project to the north. These hybrid alternatives would minimize biological and visual impacts from Jefferson Substation to Trousdale Drive (about 11 miles), and would avoid installing the 230 kV line in Trousdale Drive's residential area. However, one of the transition stations near San Bruno Avenue would be required to transition to an underground route at that location.

Conclusion for Northern Segment

Table E-1c shows that the Proposed Project would not cause any significant, unavoidable impacts in the segment north of the Proposed Project Transition Station. As discussed above, the preferred alternative for the southern segment is Route Option 1B. Selecting that alternative would avoid multiple significant, unmitigable impacts including impacts related to the Proposed Project Transition Station. The northern end of this alternative is at the intersection of El Camino Real and San Bruno Avenue in the City of San Bruno. From this location, the Cherry Avenue Alternative, most of the Sneath Lane underground route, and the Junipero Serra Alternative would not be available, but the Proposed Project, Route Option 4B, and the Modified Underground Existing 230 kV Collocation Alternative would each be available.

The comparison for the northern segment is between the Proposed Project **and** the Modified Underground Existing 230 kV Collocation Alternative, as **shown** in Table E-7. This table illustrates that **while** the collocation alternative **(with Route Options A, D, E, and F)** can avoid short-term, construction-related impacts to many residential areas, recreational facilities, **schools**, and **important** transportation corridors **that would be affected by the Proposed Project. However, it would also create greater impacts in other areas because of construction through contaminated areas, and the potential for greater impacts to cultural and water resources. Potential construction-related impacts related to cultural resources and public health under this alternative would be reduced by mitigation identified in this EIR. This route would also minimize impacts to residential, recreational, and transportation uses in northern San Mateo County. No other alternative to the Proposed Project would minimize the short term, construction-related impacts as effectively as the collocation alternative.** For both the Proposed Project and the Modified Underground Alternative, all significant environmental impacts can be avoided or reduced to less than significant levels with mitigation. Both routes have comparable impacts and neither route shows a significant environmental benefit over the other. Therefore, **both the Proposed Project and the Modified Underground Existing 230 kV Collocation Alternative are considered to be the environmentally superior alternatives** for the northern segment **over the other alternative routes. Other factors, such as cost and timing of need, are considered in the CPUC's general proceeding, and can be used along with the environmental information presented in this EIR to make the ultimate determination regarding which**

~~route (if any) is to be approved. is the Modified Underground Existing 230 kV Collocation Alternative.~~
No Statement of Overriding Considerations would be required for this segment.

Summary of Environmentally Superior Alternative

The environmentally superior alternative ~~consists of~~ Route Option 1B ~~in the southern segment, with mitigation and one of the several acceptable crossings the optional submarine cable at of~~ the Crystal Springs Dam, ~~(as an option of Mitigation Measure C 4a) in conjunction with either the Proposed Project's underground segment or the~~ Modified Underground Existing 230 kV Collocation Alternative ~~in the northern segment. with mitigation. Because significant recreation and visual impacts would occur without the optional submarine cable, a Statement of Overriding Considerations would be necessary for these impacts in the vicinity of the Crystal Springs Dam.~~

E.3 No Project Alternative vs. the Environmentally Superior Alternative

Summary of No Project Alternative and Its Impacts. The No Project Alternative is described in Section C.6, and includes the following components:

- Installation of new generation in the CCSF.
- Closure of Hunters Point Power Plant Unit 4.
- Continued upgrades of PG&E system (rerating and upgrading of certain transmission lines, and installation of a new transformer to improve system reliability and service).
- Completing improvements to PG&E system (conversion of San Mateo-Martin #4 from 60 kV to 115 kV and the installation of a Potrero-Hunters Point 115 kV underground cable).
- System management and planning would continue to occur (management of load, reduction of demand, possible electric service curtailments).

The environmental impacts of the No Project Alternative would primarily result from operation of gas-fired turbine generators. These long-term operational impacts include substantial air emissions and ongoing noise near the generators, as well as visual impacts of the generators depending on their locations. In addition, the No Project Alternative could result in electric service curtailments, which would increase use of back-up diesel generators, resulting in additional pollutant emissions.

Summary of the Environmentally Superior Alternative and Its Impacts. The Environmentally Superior Alternative as defined in Section E.2.3 would be a combination of the PG&E Route Option 1B Alternative and ~~either~~ the Proposed Project's underground segment or the Modified Underground 230 kV Collocation Alternative. ~~Neither of these This routes~~ would require ~~an~~ transition station and ~~they~~ would be entirely underground (except for existing substations) and would be installed in paved roadways ~~or the BART ROW~~. As a result, project operation would have almost no operational air emissions, no effects on sensitive biological resources, and minimal visual impacts. Short-term impacts would include construction disturbance (noise, dust, air emissions, traffic). Impacts of the Environmentally Superior Alternative are defined in each issue area's impact analysis for the PG&E Route Option 1B Alternative, the Proposed Project's underground segment, and the Modified Underground Existing 230 kV Collocation Alternative.

The PG&E Route Option 1B Alternative would have no significant and unmitigable (Class I) impacts ~~assuming use of the underwater cable option around~~ regardless of the method of crossing Crystal Springs Dam. The following impacts would occur, but they would be mitigable to less than significant levels:

- Construction disturbances from dust, air emissions, noise, and traffic.
- Disruption of recreational activities along Cañada Road.
- Increased potential for sedimentation into SFPUC reservoirs.

~~Neither the Proposed Project's underground segment nor t~~The Modified Existing 230 kV Collocation Alternative would ~~also have no~~ have any significant, unmitigable (Class I) impacts. Since these options would also be ~~this is also an~~ entirely underground ~~alternative and it would be installed within paved roadways and mostly in industrial areas~~, impacts would be primarily short-term, and would include:

- ~~A greater p~~Potential ~~for~~ effects on traffic and existing underground utilities due to ~~the its location in~~ highly developed nature of the affected areas.
- Along the Proposed Project route, Construction disturbances to residences and schools from dust, air emissions, and noise.
- Along the alternative route, Higher potential for discovering cultural resources and for creating sedimentation into the San Francisco Bay, both due to the route's greater proximity to the Bay. Also higher likelihood of encountering contaminated soils and groundwater during construction due to the historic and current industrial land uses.

Conclusion: Comparison of Environmentally Superior Alternatives with No Project Alternative.

The Environmentally Superior Alternatives would be located entirely underground and in areas with minimal long-term impacts on residences or other sensitive land uses. ~~Long-term impacts would be minimal.~~ In comparison, the most significant impact of the No Project Alternative is its likelihood of creating long-term air emissions and noise impacts along with visual impacts from generation facilities. In addition, the No Project Alternative has the potential to result in electric service disruption. Overall, the Environmentally Superior Alternatives, as illustrated on Figure E-1 (rev), is preferred over the No Project Alternative.

Figure E-1. Environmentally Superior Alternatives (rev)

For security reasons this figure is not included in the online version of the report.

