9. Alternative 5 (Partial Underground): Impacts and Mitigation Measures

9.1 Direct and Indirect Effects Analysis

Alternative 5 is described in Section 1.2.5. This alternative only covers a 3.5 mile portion of the Segment 8 route within SRA 33. However, this alternative introduces completely different construction methods and would be in construction from 2009 through 2013. The proposed route for this alternative does not change from that of the proposed Project within the KCAPCD or AVAQMD jurisdictions; therefore, the construction emissions for this alternative are only presented numerically for the SCAQMD jurisdiction.

This alternative would cause construction activities similar to those of the proposed Project, except it would:

- Require the construction of 3.5 miles of undergrounded lines (in SRA 33).
- Decrease the number of new towers by 15 in comparison with Alternative 2.

The maximum daily construction emissions and annual emissions for this alternative are different from Alternative 2 in the SCAQMD jurisdiction. Appendix A provides the emission assumptions and detailed emission calculations for this alternative and shows a comparison with the annual emissions estimated for the Alternative 2.

Regional Emission Thresholds (Criterion AIR1)

Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1). Alternative 5 is the same as Alternative 2 for the AVAQMD and KCAPCD jurisdictions. However, the worst case daily emissions for SCAQMD would increase due to the additional construction activities required for this alternative, but would not cause any additional emission exceedances, just increase the existing emission exceedances. Overall, this alternative would disproportionally increase criteria pollutant emissions in comparison with Alternative 2 (see Appendix A).

Implementation of recommended Mitigation Measures AQ-1a through AQ-1j, as previously recommended for Alternative 2, and two additional mitigation measures added to mitigate the waste soil hauling emissions would reduce the construction emissions to the maximum feasible degree. However, after mitigation the regional construction emission impacts are still significant and unavoidable (Class I)

Additional Mitigation Measures for Impact AQ-1

AQ-1m **Tunnel Waste Trip Distance Minimization.** The haul trip distances for the waste soil and rock from tunneling shall be minimized to the extent feasible by working with other agencies to identify the closest locations for reuse (sand and gravel plants) or disposal of the tunneling soil and rock wastes.

AQ-1n **Tunnel Waste Truck Capacity.** Double trailer trucks with a minimum total effective capacity of 20 cubic yards will be used to haul the tunneling waste soil and rock.

Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2). Alternative 5 would have increased operating emissions in comparison with Alternative 2, due to the increased inspection and maintenance requirements for the underground line. However, this increase,

which is assumed to be limited to occasional small truck trips, is not considered to be higher on a daily basis that the operating emissions already calculated for the proposed project. Therefore, like Alternative 2, due to the Project's indirect emission reductions this alternative's operating emissions would provide a beneficial regional operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). Alternative 5 covers an area that includes significant residential development. The location of the construction equipment will, by necessity, have to be very close to homes. Table 9-1 presents the comparison of worst-case daily onsite construction emissions, showing only the tunneling off-road equipment emissions, for the underground line and the SRA 33 LST for a one-acre construction site with receptors located 25 meters from the site. Appendix A provides the assumptions for the worst-case construction activity for localized impact assessment for this alternative.

Table 9-1. Alternative 5 Localized Impact Emissions Comparison – Additional Construction

	NOx	PM10	PM2.5
Undergrounding construction (1-acre)	494	20	18
Localized Significance Threshold (25 meters)	118	5	4
Exceeds (YES/NO)	YES	YES	YES

The mitigation measures recommended for Impact AQ-1 mitigate construction emissions to the maximum feasible extent, so no additional mitigation is recommended for this impact. This alternative creates a new significant localized NOx impact that does not occur for the proposed project and creates higher magnitude PM10 and PM2.5 significant impacts. Therefore, this alternative, like Alternative 2, will have significant and unavoidable (Class I) temporary air quality impacts to sensitive receptors in SCAQMD jurisdiction.

Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4). Alternative 5 would have additional inspection and maintenance activities associated with the underground section; however, those emissions would be limited to smaller vehicles going to the from the underground access locations and would not result in a considerable amount of emissions in any one location and these inspection and maintenance emissions would not be anywhere near the SCAQMD localized significance criteria. Therefore, like Alternative 2, this alternative's operating emissions would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5). Alternative 5 does not, with the exception of the construction and operation of the underground section, impact the Project's construction methods or direct operating emissions within SCAQMD jurisdiction, and does not impact emissions in the AVAQMD or KCAPCD jurisdiction. Additionally, the Project's construction occurs over a limited period, no more than 5 years that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, like Alternative 2, the risk from Project construction at any given receptor area is expected to be below the SCAQMD significance thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

The Project would not conform to Federal General Conformity Rules (Impact AQ-6). Alternative 5 does not change the emissions in the ANF. Therefore, the impacts for this alternative are identical to Alternative 2. Like Alternative 2 this alternative would conform to the SIP and would have a less-than-significant impact (Class III).

Odors (Criterion AIR5)

The Project would create objectionable odors (Impact AQ-7). Alternative 5 would have essentially identical construction and operation odor potential as Alternative 2. Therefore, like Alternative 2, this alternative would have less-than-significant (Class III) odor impacts.

Angeles National Forest Strategy Conformance (Criterion AIR6)

The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8). Alternative 5 does not change the construction requirements and methods within the Angeles National Forest from those in Alternative 2. Therefore, like Alternative 2, with the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9). Alternative 5 has identical impacts, and recommended mitigation measures, as Alternative 2 in respect to conforming to AQMPs. Therefore, like Alternative 2, with incorporation of mitigation measures AQ-1a, AQ-1b, and AQ-1d. This alternative would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Emissions would contribute to climate change (Impact AQ-10). The GHG emissions estimated for construction are higher for this alternative than for Alternative 2 (Tables 6-5, and 6-6); however, due to the very large indirect emissions reductions would have the same overall significant Project GHG emission reduction. Therefore, this alternative has essentially the identical impacts as the proposed Project and would provide a beneficial GHG emissions impact (Class IV).

9.2 Cumulative Effects Analysis

Alternative 5 revises a small portion of the Segment 8 route from being overhead lines to being underground lines, and as such has the same general geographic extent, existing cumulative conditions, reasonably foreseeable future projects and changes, and impacts as Alternative 2. Therefore, Alternative 5 would have the same cumulative impact levels as Alternative 2 (see Section 6.2).