

4.3 Air Quality

4.3.1 Overview

This section describes the methods applicable to analyzing the potential effects of the alternatives on air quality in the study area. The regulations that govern air quality in the study area are addressed in Section 3.3, Air Quality. As described in Section 3.3, Air Quality, the study area for the analysis of direct and indirect effects includes the three air basins in the vicinity of the Covered Lands: the San Joaquin Valley Air Basin (SJVAB), the Mojave Desert Air Basin (MDAB), and the South Coast Air Basin (SCAB). The cumulative effects analysis area consists of the same area. The cumulative effects of the proposed action are discussed in Section 4.3.7, Cumulative Air Quality Effects.

4.3.1.1 Methods

The analysis of the effects and the magnitude of direct, indirect, and cumulative effects on air quality are considered in terms of whether each alternative would contribute to an exceedance of any applicable air quality thresholds, as a result of construction, operations or both; expose sensitive receptors to unacceptable levels of risk from exposure to toxic air contaminants (TACs) or to carbon monoxide (CO) hotspots; or expose people to an unmitigable objectionable odor. In general, potential effects were assumed to be associated with construction and operation emissions, exposure of sensitive receptors to substantial pollutant concentrations from construction or operation, and the creation of objectionable odors associated with Commercial and Residential Development.

Applicable Thresholds

As discussed in Section 3.3, Air Quality, air quality in the study area is regulated by the San Joaquin Valley Air Pollution Control District (SJVAPCD), the Eastern Kern Air Pollution Control District (EKAPCD), and the South Coast Air Quality Management District (SCAQMD). With respect to evaluation of criteria pollutant emissions, the emissions resulting from each alternative are compared against the appropriate significance thresholds depending on where emissions would be assumed to occur. These thresholds are shown in Table 4.3-1. Given the absence of Service-specific air quality significance criteria, the Service believes that the air district thresholds provide a useful method of assessing the magnitude of air quality effects of the various alternatives. Although these thresholds have been developed by the air districts for purposes of conducting analysis pursuant to the California Environmental Quality Act (CEQA), and are not specifically intended for use in National Environmental Policy Act (NEPA) analyses, they provide a helpful point of measurement to determine the magnitude of an alternative's effects on air resources. In addition, these thresholds represent the generally accepted approach to determining whether a project's emissions would result in a substantial contribution to existing violations of California or National Ambient Air Quality Standards (CAAQS or NAAQS) as presented in Section 3.3, Air Quality, and are generally considered the most stringent thresholds available.

As discussed in Section 3.3.2.1, Federal Laws, Regulations, and Standards, a general conformity analysis pursuant to the Federal Clean Air Act need not be conducted. Thus, the conformity *de minimis* thresholds are not relevant to this analysis.

Table 4.3-1. Air District Air Emissions Thresholds (tons per year)

	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
SJVAPCD Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴
EKAPCD Threshold	25 ⁵	25 ⁵	— ⁶	— ⁷	15 ⁵	— ⁸
SCAQMD Threshold ⁹	10	10	100	27.5	27.4	10

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District; EKAPCD = Eastern Kern Air Pollution Control District; SCAQMD = South Coast Air Quality Management District

- ¹ ROG and NO_x CEQA thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROG_s and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.
- ² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.
- ³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.
- ⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROG_s and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.
- ⁵ CEQA significance thresholds from Damo pers.comm. 2008. ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated ROG_s nonattainment for 8-hr ozone (state and Federal) standards; exceedance of those thresholds contributes to the basin nonattainment status.
- ⁶ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for CO.
- ⁷ The Mojave Desert Air Basin is designated as attainment (state) or unclassifiable (Federal) for SO₂.
- ⁸ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for PM_{2.5}.
- ⁹ Significance thresholds from SCAQMD 2011 converted to tons per year.

General Basis of Analysis

The potential emissions of the alternatives are quantitatively analyzed using the California Emissions Estimator Model (CalEEMod; all references to CalEEMod are Version 2011.1.1). Emissions estimates are provided for comparative analysis of alternatives addressed in this EIS and do not represent specific emissions estimates such as would likely occur on a project-specific basis when development plans and construction scenarios (phasing, staging, equipment number and type, construction scheduling) and operation characteristics (trip assignment and distribution, vehicle mix, arrangement of land uses) would be more specifically known.

Emissions for each alternative are compared against emissions present under the No Action Alternative. Emissions for the No Action Alternative are compared to existing conditions. Under existing conditions, the primary sources of air emissions are associated with ongoing Existing Ranch Uses. Some of these uses involve activities that generate a small amount of construction or operation emissions. Construction emissions could occur as a result of road and utility maintenance, construction of new roads or utilities, and construction or maintenance of ancillary ranch structures or back-country cabins. Existing residential and commercial uses are limited, but could potentially result in minor amounts of operation emissions. In addition, general ranch operations result in a nominal level of criteria pollutant emissions from, for example, security vehicles, hunting and film programs, and agricultural operations. However, the criteria pollutant emissions associated with Existing Ranch Use construction and operations are nominal. Because these activities generate only incidental, insubstantial criteria pollutants, the existing condition is assumed to result in negligible emissions on the Covered Lands that are compliant with existing applicable regulations.

Construction Assumptions

The construction-related effects analysis relies primarily on the default construction assumptions in CalEEMod because construction phasing under the alternatives is not known. While these assumptions are representative for many development projects, use of the default construction assumptions in CalEEMod may over- or underestimate the activity levels associated with actual development under the alternatives. Therefore, revisions were made in an attempt to simulate reasonably expected activity levels without deviating significantly from the basic CalEEMod methodology.

Air emissions were designated to the appropriate air basin depending on where construction would occur to ensure potential air emissions were compared against the appropriate thresholds. Commercial and Residential Development Activities under the Proposed TU MSHCP and Condor Only HCP Alternatives would occur primarily in the SJVAB where the proposed development would largely be located. Under these alternatives, some small area of development could also occur in the MDAB, associated with developing a portion of Oso Canyon (approximately 262.7 acres in the MDAB). However, this area would only be developed if an equivalent area were not developed in the SJVAB. Therefore, as discussed in greater detail in Section 4.3.3, Proposed TU MSHCP Alternative, construction-related emissions are compared to the more stringent SJVAPCD thresholds for these alternatives.

Commercial and Residential Development Activities under the CCH Avoidance MSHCP Alternative would not occur in Oso Canyon or the MDAB and are also compared to the SJVAPCD thresholds. Commercial and Residential Development Activities under the Kern County General Plan Buildout Alternative would occur in the SJVAB and the MDAB and are calculated for each air basin and compared to the appropriate thresholds. No construction is proposed in the SCAB under any alternatives.

Construction for all alternatives were assumed to occur over seven, 4-year-long phases, beginning in January 2013 and lasting for a total of 28 years. Assumptions for construction phasing are consistent with the approach used in the Tejon Mountain Village Environmental Impact Report (TMV EIR) (Kern County 2009), which assumed the TMV Project would be built out over 18 years in six construction phases varying in length from 2 to 5 years. Because the TMV EIR identified a nonuniform construction schedule (i.e., the amount of development under construction would vary from year to year), the construction levels (e.g., residential units under construction) in each phase were developed for this analysis to approximate those in the TMV EIR. Construction in the TMV Specific Plan Area was assumed to occur in five 4-year phases (20 total years). For any alternatives with Commercial and Residential Development Activities outside the TMV Specific Plan Area, construction would begin in 2021, 8 years after commencement of the construction of land uses in the TMV Specific Plan Area, and would also continue in five 4-year phases for a total of 20 years. Because the development plans for areas outside the TMV Specific Plan Area are unknown, the construction levels were assumed to be uniform from year to year.

For the purposes of air emission modeling, it is assumed that each 4-year phase of construction would commence in January and would last approximately 48 months, ending in December. For example, the first phase of construction would begin in January 2013 and proceed through December 2016. Within each 4-year phase, the following assumptions were made regarding the timing of the construction subphases:

- Grading activities would begin at the beginning of each 4-year construction phase and continue for 6 months.
- Trenching activities for utility installation would occur for 3 months during the first year of each 4-year construction phase and would overlap with the grading phase for 1 month.
- Paving activities would occur following completion of the trenching phase and would last 3 months during the first year of each 4-year construction phase.
- Building construction would commence 9 months into the first year (2013) and reach completion 3 months prior to final construction buildout in year 2040. Thus, building construction would occur November 2013 to September 2040. Architectural coating would start in the second month of the second year of construction (2014), following initial construction of residences and/or commercial buildings, and continue through the end of 2040. Thus, architectural coating activities would occur February 2014 to December 2040.

All construction equipment types were estimated using CalEEMod default values based on the proposed development. CalEEMod default values for equipment daily operating hours and numbers of worker and delivery truck trips and trip lengths were assumed. Construction would occur 5 days a week, approximately 22 days per month. CalEEMod-generated assumptions for total acres disturbed during grading were used.

The number of total residential units and area of commercial space (thousand square feet [ksf]) by alternative are shown in Table 4.3-2.

Additional details regarding the methodology and assumptions used to estimate construction emissions are found in Appendix F, Air Quality and Greenhouse Gas Assessment.

Operation Assumptions

CalEEMod was also used to calculate stationary and mobile sources of operation emissions, requiring input assumptions for the various emissions-generating activities based on different land uses for each alternative. Specific assumptions are discussed in greater detail below. Similar to construction-related air emissions, operation emissions were designated to the appropriate air basin depending on where Commercial and Residential Development would be located and where related travel would occur to ensure potential air emissions were compared against the appropriate thresholds.

With respect to stationary sources, operation emissions from Commercial and Residential Development under the Proposed TU MSHCP and the Condor Only HCP Alternatives were assumed to primarily occur in the SJVAB. Under these alternatives, some small area of development could also occur in the MDAB, associated with developing a portion of Oso Canyon (approximately 262.7 acres within the MDAB). However, this area development would only occur under these alternatives if an equivalent area of development did not occur within the SJVAB. Therefore, as discussed in greater detail in the effects analyses, stationary sources of operation emissions are compared to the more stringent SJVAPCD thresholds for these alternatives.

Commercial and Residential Development Activities resulting in stationary sources of operations emissions under the CCH Avoidance MSHCP Alternative would occur entirely in the SJVAB because no development would occur in Oso Canyon. Stationary sources of operations emissions from Commercial and Residential Development Activities under the Kern County General Plan Buildout Alternative would occur in the SJVAB and the MDAB, depending on the location of the proposed development.

Table 4.3-2. Commercial and Residential Distribution for All Alternatives

Alternative/Construction Activity	Total	Activity by Air Basin ¹	
		San Joaquin Valley Air Basin	Mojave Desert Air Basin
No Action Alternative			
Residential (units)	0	0	0
Retail Space (ksf)	0	0	0
Office Space (ksf)	0	0	0
Hotel (ksf)	0	0	0
Support Uses (ksf)	0	0	0
Proposed TU MSHCP/Condor Only HCP Alternatives			
Residential (units)	3,632	3,632	0
Retail Space (ksf)	488.878	488.878	0
Office Space (ksf)	1,644.39	1,644.39	0
Hotel (ksf)	450	450	0
Support Uses (ksf)	350	350	0
CCH Avoidance MSHCP Alternative			
Residential (units)	3,161	3,161	0
Retail Space (ksf)	488.878	488.878	0
Office Space (ksf)	1,644.39	1,644.39	0
Hotel (ksf)	450	450	0
Support Uses (ksf)	350	350	0
Kern County General Plan Buildout Alternative			
Residential (units)	7,238	5,797	1,441
Retail Space (ksf)	556.962	546.151	10.811
Office Space (ksf)	1,587.848	1,544.606	43.242
Hotel (ksf)	450	450	0
Support Uses (ksf)	350	350	0

Notes: ksf = thousand square feet

¹ Only the San Joaquin Valley Air Basin and Mojave Desert Air Basin are addressed in this table, because no construction would occur in the South Coast Air Basin.

For all proposed action alternatives, the mobile sources of operation emissions were apportioned to air basins within the study area as follows. Emissions from vehicle trips associated with the Commercial and Residential Development Activities that would be located in the SJVAB portion of Kern County were split between the SJVAB and the SCAB. It was assumed that 36.3% of the vehicle-miles travelled would occur in the SJVAB and 63.7% would occur in the SCAB (Austin-Foust Associates 2011). While some emissions from vehicles traveling to and from development in the SJVAB could also occur in the MDAB related to the proposed Centennial Project, as discussed in greater detail under the effects analysis, because the Centennial Project is still somewhat

speculative, potential trips that could occur in the MDAB are attributed to the SCAB and compared to the SCAQMD thresholds for the purposes of this analysis.

Area source emissions from landscape maintenance, natural gas combustion, fireplaces, consumer products, and maintenance use of architectural coatings were assigned to the air basin in which the Commercial and Residential Development Activities would occur. As noted in the construction assumptions, construction would be completed in December 2040 for all alternatives. Full operation would occur in 2041.

The default values in CalEEMod were used to estimate most operation emissions for landscape maintenance, consumer products, and natural gas combustion for space and water heating. Adjustments of the CalEEMod default assumptions were made to fireplaces, water, and wastewater, as further explained in Appendix F, to better reflect the development scenarios (i.e., a mix of urban-type and rural residential development).

The following additional assumptions were made for vehicle trips for all proposed action alternatives:

- Trip generation rates for uses within the TMV Specific Plan Area were taken from the TU MSHCP Traffic Study (Austin-Foust Associates 2011) (Appendix H, TU MSHCP Traffic Study). Single-family dwelling units in the TMV Specific Plan Area were assigned a trip generation rate of 9.57 vehicle trips per dwelling unit, and multi-family dwelling units were assigned a trip generation rate of 6.65 vehicle trips per dwelling unit. Retail uses were assigned trip generation rates of 57.61 vehicle trips per 1,000 square feet. Hotel uses were assigned a rate of 8.17 vehicle trips per room, and support uses were assigned a rate of 5.63 vehicle trips per 1,000 square feet.
- Trip generation rates for uses outside the TMV Specific Plan Area were also taken from the TU MSHCP Traffic Study (Austin-Foust Associates 2011) (Appendix H). All residential units outside the TMV Specific Plan Area would be single-family dwelling units with a trip generation rate of 9.57 vehicle trips per dwelling unit. All commercial space outside the TMV Specific Plan Area would be 80% office space and 20% retail space with trip generation rates of 11.01 trips and 42.94 trips, respectively, per 1,000 square feet. For all alternatives, the average vehicle trip length was estimated at 28.8 miles per trip for commercial and residential vehicle trips originating in or passing through the SJVAB and the MDAB. The average vehicle trip length is a weighted composite of local trips, trips going north on Interstate 5 (I-5) in Kern County, and trips going south on I-5 to Los Angeles County.
- Under the Kern County General Plan Buildout Alternative, a portion of the trips in the MDAB were considered to be local and were assigned an average of distance of 5.3 miles per trip, using the value from the traffic report for local trips (Austin-Foust Associates 2011) (Appendix H).

Additional details regarding the methodology and assumptions used to estimate operations emissions are found in Appendix F.

4.3.2 No Action Alternative

4.3.2.1 Construction Emissions

Commercial and Residential Development Activities

No Commercial and Residential Development Activities would occur under the No Action Alternative. There would be no direct or indirect effects on air quality during construction from these activities.

Existing Ranch Uses

Under the No Action Alternative, Existing Ranch Uses would continue in a manner similar to existing conditions, subject to the best management practices (BMPs) and use restrictions required by the Ranchwide Agreement (as currently set forth in the Interim RWMP) to preserve and protect conservation values. These BMPs and use restrictions require that Tejon RanchCorp (TRC) work with the SJVAPCD to minimize air quality effects in a variety of ways (e.g., achieving energy code compliance with regard to signs and structures, and utilizing off-grid technologies to the extent feasible) (Tejon Ranch Company 2009). The Ranchwide Agreement requires that all subsequent RWMPs must similarly reflect BMPs that maintain the conservation values of the land and that such restrictions are carried through in the conservation easements required by the Ranchwide Agreement.

Existing Ranch Uses would generate only incidental, insubstantial criteria pollutant emissions associated primarily with construction and maintenance of road and utility infrastructure, ancillary ranch structures, and back-country cabins. As described in Section 4.3.1.1, Methods, for the purposes of this NEPA analysis, it is assumed existing activities within the Covered Lands would result in essentially no emissions because the extent of these activities is limited. Given that existing conditions are assumed to result in very minor emissions that are currently in compliance with applicable regulations, and because the No Action Alternative would not represent a substantial change over existing conditions, the continuation of Existing Ranch Uses under this alternative would not be expected to result in exceedance of air quality standards due to the small scale and infrequency of the activities.

4.3.2.2 Operation Emissions

Commercial and Residential Development Activities

No Commercial and Residential Development Activities would occur under the No Action Alternative. There would be no operation-related direct or indirect effects on air quality from these activities.

Existing Ranch Uses

As mentioned previously, under the No Action Alternative, Existing Ranch Uses would continue in a manner similar to current conditions and would be subject to the BMPs and use restrictions required by the Ranchwide Agreement (as currently set forth in the Interim RWMP) to preserve and protect conservation values. These BMPs and use restrictions require TRC to work with the SJVAPCD to minimize air quality effects in a variety of ways (e.g., implementing a no-burn policy for agricultural

trimmings, implementing a dust control plan, and ensuring all farming equipment is maintained in good condition).

As described above, Existing Ranch Uses would result in minimal emissions on the Covered Lands. Some minor emissions could occur associated with existing residential, commercial, and agricultural land uses and ongoing activities associated with filming and recreational access. However, these emissions would be minor and would continue to be in compliance with applicable regulations. As such, the continuation of Existing Ranch Uses under the No Action Alternative would not be expected to result in exceedance of air quality standards due to the small scale and infrequency of these activities.

4.3.2.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Commercial and Residential Development Activities

Construction

No Commercial and Residential Development Activities would occur under the No Action Alternative, and there would be no direct or indirect effects that would affect sensitive receptors during construction associated with Commercial and Residential Development Activities.

Operations

No Commercial and Residential Development Activities would occur under the No Action Alternative. There would be no direct or indirect long-term exposure of sensitive receptors to operation emissions associated with Commercial and Residential Development Activities.

Existing Ranch Uses

Currently, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such receptors to be exposed to pollutant from Existing Ranch Uses. The exceptions would be near the existing El Tejon School playground, Tejon Fields and the residences near the north end of Lebec Road.

Under the No Action Alternative, Existing Ranch Uses would continue at existing levels and would not represent a substantial change over existing conditions. The continuation of Existing Ranch Uses, as described above, would not be expected to result in substantial emission concentrations near sensitive receptors. As discussed in Section 3.3, Air Quality, very minor emissions from limited construction and operation activities associated with existing land uses would continue. Due to the small scale and infrequency of the activities, the risk that Existing Ranch Uses would result in exposure of sensitive receptors to substantial concentrations of pollutants is minor.

4.3.2.4 Objectionable Odors

Commercial and Residential Development Activities

Construction

No Commercial and Residential Development Activities would occur under the No Action Alternative. There would be no direct or indirect effects associated with odors during construction of development infrastructure.

Operations

No Commercial and Residential Development Activities would occur under the No Action Alternative. There would be no direct or indirect effects associated with odors during operation of facilities associated with development.

Existing Ranch Uses

Currently, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such receptors to be exposed to substantial objectionable odors. The exceptions would be near the existing El Tejon School playground, Tejon Fields and the residences near the north end of Lebec Road.

Under the No Action Alternative, Existing Ranch Uses would continue at existing levels and would not result in any increases in the potential creation of additional objectionable odors. As discussed in Section 3.3, Air Quality, very minor sources of objectionable odors, such as cattle grazing and other agricultural activities, would continue and would be spread-out and located far from the majority of sensitive receptors. Therefore, the likelihood that the No Action Alternative would result in the exposure of sensitive receptors to substantial sources of objectionable odors is minor.

4.3.3 Proposed TU MSHCP Alternative

4.3.3.1 Construction Emissions

Commercial and Residential Development Activities

Construction of the Proposed TU MSHCP Alternative would occur primarily in the SJVAB. Some small construction-related emissions (2.24 tons per year of reactive organic gas [ROG]; 8.12 tons per year of oxides of nitrogen (NO_x); and 0.66 tons per year of particulate matter greater than 10 microns in diameter [PM₁₀]) could occur in the MDAB associated with potential development of Oso Canyon (approximately 262.7 acres).¹ However, as mentioned in Section 4.3.1.1, Methods, above, development of this area would only occur if an equivalent area of development did not occur in the SJVAB. Therefore, construction-related emissions for the entire Disturbance Area (including the

¹ 262.7 acres of the 506-acre Oso Canyon area lie within the MDAB. Emission levels were calculated by assuming a similar density to that proposed for the TMV Planning Area; namely 173 residential units. Construction that would occur during the first phase (2013 to 2016) was scaled to a level associated with 173 units. It should be noted that these estimates likely over-predict the emissions associated with development in the MDAB portion of the Oso Canyon area because, for example, the development within the TMV Planning Area involves more than just residential development compared to what might be developed in Oso Canyon. A more refined analysis based on specific development plans would likely generate lower emission estimates. Additional details about this analysis are found in Appendix F.

portion of Oso Canyon within the MDAB) were modeled and compared to the more stringent thresholds of the SJVAB. Nevertheless, even if the emissions listed above were attributed to the MDAB, they would not exceed the EKAPCD significance thresholds. No construction would occur in the SCAB.

Table 4.3-3 summarizes potential construction emissions associated within the Proposed TU MSHCP Alternative. Under the Proposed TU MSHCP Alternative, construction activities associated with Commercial and Residential Development Activities would generate ozone precursor emissions (ROG, NO_x) from heavy-duty construction equipment operating on construction sites, from mobile-source emissions attributed to construction workers that would travel to and from the construction site, and from haul/delivery trucks that would travel to and from the construction site. In addition, ROG emissions would occur during each finishing phase of construction activity, during asphalt paving, and during the application of architectural coatings (i.e., paints). The largest quantity of fugitive PM₁₀ emissions would occur during periods of site grading and excavation activities. Air pollutant emissions during construction would vary substantially from day to day, depending on the level of construction activity, the specific type of operation and, for fugitive PM₁₀, prevailing weather conditions. However, as indicated in Table 4.3-3, modeled construction emissions would exceed the SJVAPCD thresholds for ROG and NO_x even assuming mandatory emissions reductions of NO_x required pursuant to Rule 9510.

All Commercial and Residential Development Activities under the Proposed TU MSHCP Alternative would be subject to Federal, state, and local air quality protection requirements as indicated in Section 4.3.3.6, Mitigation Measures. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation and BMPs to reduce air emissions as part of its environmental review process. For example, Kern County's approval of the TMV Project requires, among other things, that emissions not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation). Kern County also requires submittal and implementation of a dust control plan approved by the SJVAPCD, including specific dust control BMPs; compliance with all other requirements of the SJVAPCD Fugitive Dust Rules; use of alternative fuel technologies for construction vehicles; and selection of sustainable construction materials (Appendix J, MMs 4.3-1 through 4.3-5) (Kern County 2009). In addition, conservation measures in the TU MSHCP (Tables 2-3 and 2-4 in Chapter 2, Proposed TU MSHCP and Alternatives) would further reduce air quality effects from construction by, for example, requiring dust suppression measures.

In addition, the majority of the Commercial and Residential Development included in the Proposed TU MSHCP Alternative would occur in the TMV Planning Area, which is part of a planned development. This would provide more opportunity to mitigate potential emissions effects related to construction. For example, a coordinated dust control plan would apply to almost all construction activities, as would commitments regarding the use of lower-emitting and well-controlled construction equipment in accordance with California Air Resources Board (CARB) and air district regulations (Appendix J).

Even with implementation of required mitigation measures and BMPs and coordination of construction activities to reduce air emissions, it is likely SJVAPCD thresholds would be exceeded during certain periods of construction under the Proposed TU MSHCP Alternative, resulting in substantial effects.

Table 4.3-3. Construction Emissions (tons per year)—Proposed TU MSHCP, Condor Only HCP, and CCH Avoidance MSHCP Alternatives

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2013	3.56	25.76	15.36	0.03	1.87	1.52
2014	7.03	22.76	17.76	0.04	2.10	1.31
2015	7.12	20.67	17.20	0.04	1.97	1.17
2016	6.87	18.73	16.68	0.04	1.85	1.04
2017	9.98	39.85	34.20	0.07	3.62	2.25
2018	6.60	16.79	17.94	0.04	1.91	0.86
2019	6.38	15.18	17.54	0.04	1.79	0.75
2020	6.22	13.80	17.27	0.04	1.70	0.65
2021	7.98	26.17	30.50	0.07	2.57	1.31
2022	5.53	11.07	16.23	0.04	1.38	0.47
2023	5.42	10.09	16.05	0.04	1.31	0.41
2024	5.36	9.32	16.02	0.04	1.27	0.36
2025	14.00	32.90	52.55	0.13	4.04	1.45
2026	10.84	16.27	29.47	0.08	2.61	0.61
2027	10.84	16.27	29.47	0.08	2.61	0.61
2028	10.80	16.21	29.36	0.08	2.60	0.61
2029	13.03	32.08	51.42	0.13	3.55	1.41
2030	9.37	11.21	27.51	0.07	1.89	0.34
2031	9.37	11.21	27.51	0.07	1.89	0.34
2032	9.41	11.25	27.62	0.07	1.89	0.34
2033	1.37	2.81	5.66	0.02	0.45	0.10
2034	1.06	1.60	3.01	0.01	0.33	0.05
2035	1.04	1.41	2.96	0.01	0.32	0.04
2036	1.05	1.41	2.97	0.01	0.32	0.04
2037	1.32	2.32	5.58	0.02	0.42	0.08
2038	1.04	1.41	2.96	0.01	0.32	0.04
2039	1.04	1.40	2.95	0.01	0.32	0.04
2040	0.96	1.02	2.26	0.01	0.25	0.03
Maximum Annual Emissions	14.00	32.90	52.55	0.13	4.04	1.45
Rule 9510 Reduction	—	5.90	—	—	0.55	—
Net Emissions	14.00	27.00	52.55	0.13	3.49	1.45
SJVAPCD Threshold	10¹	10¹	—²	—³	15¹	—⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District

¹ ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROG and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.

⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

The emissions shown in this table are based on the assumptions discussed in Section 4.3.1.1, Methods. The estimated emissions associated with a particular construction plan may be higher or lower, depending on the activity levels (e.g., equipment types and number, daily graded acreage) for that construction plan.

Plan-Wide Activities

The extent and nature of Plan-Wide Activities under the Proposed TU MSHCP Alternative would be similar to Existing Ranch Uses under the No Action Alternative, except permanent ground disturbance from these activities would be limited to 200 acres. Similar to Existing Ranch Uses under the No Action Alternative, Plan-Wide Activities would be subject to BMPs and use restrictions required by the Ranchwide Management Plan (as currently set forth in the Interim RWMP) to preserve and protect conservation values. These BMPs and use restrictions would require TRC to work with the SJVAPCD to minimize air quality effects in a variety of ways (e.g., achieving energy code compliance with regard to signs and structures, and utilizing off-grid technologies to the extent feasible) (Tejon Ranch Company 2009). In addition, under the Proposed TU MSHCP Alternative, conservation measures requiring dust suppression near construction areas would further minimize effects on air quality.

Plan-Wide Activities would generate only incidental, insubstantial criteria pollutant emissions associated with construction and maintenance of road and utility infrastructure, ancillary ranch structures, and back-country cabins. Development-related infrastructure in open space is analyzed from an air quality perspective in association with the commercial and residential development activities; thus, any construction emissions related to these activities are accounted for in the analysis above. Because ground disturbance would be limited under the Proposed TU MSHCP Alternative to 200 acres, construction emissions associated with Plan-Wide Activities would be no greater than would occur under the No Action Alternative and would not be expected to exceed applicable air quality standards.

4.3.3.2 Operation Emissions

Commercial and Residential Development Activities

Under the Proposed TU MSHCP Alternative, Commercial and Residential Development Activities would generate on-road vehicle travel, which would result in mobile-source emissions that include ozone precursor pollutants (i.e., ROGs and NO_x), PM₁₀, particulate matter less than 2.5 microns in diameter (PM_{2.5}), and CO. In addition, emissions would result from stationary sources of air emissions associated with commercial and residential land uses (e.g., onsite landscaping equipment, natural gas combustion for cooking and heating, use of consumer products).

Stationary sources of operation emissions were assumed to occur entirely within the SJVAB. As mentioned above, some small amount of development (262.7 acres) could occur in the MDAB if Oso Canyon is developed, which could result in stationary sources of operation emissions within the MDAB (4.51 tons per year of ROG [versus 25 tons per year threshold]; 12.51 tons per year of NO_x [versus 25 tons/year threshold]; and 8.41 tons per year of PM₁₀ [versus 15 tons/year threshold]²; however, this development would only occur if an equivalent area of development did not occur in the SJVAB. Therefore, for the purposes of this analysis, it was assumed that all stationary sources of

² As noted above, these emission levels were calculated by scaling the operational emissions at full buildout for the TMV Planning Area to a level associated with a 262.7-acre development footprint. It should be noted that these estimates likely over-predict the emissions associated with development in the MDAB portion of the Oso Canyon area because, for example, the development in the TMV Planning Area involves more than just residential development compared to what might be developed in Oso Canyon. A more refined analysis based on specific development plans would likely generate lower emission estimates. Additional details about this analysis are found in Appendix F.

air emissions would occur in the SJVAB and were compared to the more stringent SJVAPCD thresholds.

Mobile sources of emissions were assumed to occur in the SJVAB and the SCAB and were apportioned between the two basins as discussed above under Operation Assumptions. While it is possible that some travel projected under the Proposed TU MSHCP Alternative could also occur in the MDAB, it would be speculative to apportion any particular amount of vehicle miles travelled (or associated emissions) to this basin. This is because the primary attractant of vehicle trips to and from the MDAB would be associated with the Centennial Project, which would be partially located in the Antelope Valley portion of the MDAB. Planning for the Centennial Project is still in its early stages (for example, a draft EIR has not been released) and exactly where development might occur is not known. However, even if all the daily vehicle trips projected to occur along State Route (SR) 138 (23,069 trips in Austin-Foust Associates 2011) (Appendix H) were to travel half the 6-mile long Centennial Project corridor and emissions were assumed to occur within the Antelope Valley portion of the MDAB, these emissions would still not exceed the thresholds set by the Antelope Valley Air Quality Management District (Antelope Valley Air Quality Management District 2011): 4.20 tons per year of ROG (versus 25 tons per year threshold); 20.98 tons per year of NO_x (versus 25 tons per year threshold); 34.26 tons per year of CO (versus 100 tons per year threshold); 0.16 tons per year of SO_x (versus 25 tons per year threshold); 14.52 tons per year of PM₁₀ (versus 15 tons per year threshold); and 1.06 tons per year of PM_{2.5} (versus 15 tons per year threshold). Therefore, for the purposes of the analysis that follows, these trips are attributed to the SCAB and compared to SCAQMD thresholds.³

The results of air quality modeling for the buildout condition and key years are presented below. Table 4.3-4 presents the total estimated operation emissions (mobile and stationary) assumed to occur in the SJVAB. Table 4.3-5 presents the total estimated operation emissions (mobile sources only) assumed to occur in the SCAB. Table 4.3-6 presents the total operation emissions for the SJVAB and the SCAB combined. Without mitigation, the ROG, NO_x, and PM₁₀ emissions estimated for the SJVAPCD would exceed the SJVAPCD thresholds (and, by implication, the PM_{2.5} emissions would contribute to the SJVAB nonattainment status). The ROG, NO_x, CO, PM₁₀, and PM_{2.5} emissions estimated for the SCAB would exceed the SCAQMD thresholds. The total combined ROG, NO_x, CO, PM₁₀, and PM_{2.5} unmitigated air emissions for both air basins would exceed each air district's thresholds. This would be the case even assuming compliance with Rule 9510 emission reduction requirements of NO_x and PM₁₀.

As mentioned above, all Commercial and Residential Development Activities would be subject to project-specific approvals from Federal and state agencies and local jurisdictions as indicated in Section 4.3.3.6, Mitigation Measures. Prior to issuance of any permits or approvals, it is anticipated the local jurisdiction would require demonstration of BMPs to minimize and mitigate operation effects on air quality. For example, Kern County's approval of the TMV Project requires that emissions not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation). Kern County also requires implementation of specific measures to reduce operation

³ If the development described above were to occur within the Oso Canyon area, and all trips associated with the Centennial Project described above occurred within the MDAB, total emissions for stationary and mobile sources combined within the MDAB would exceed either the EKAPCD's and AVAQMD's thresholds for NO_x and PM₁₀. However, as indicated previously, stationary sources of emissions would be regulated by the EKAPCD and mobile sources by the AVAQMD under which each jurisdiction's threshold would not be exceeded. In addition, for the reasons described above, this scenario is considered unlikely, and the emissions are attributed to the SJVAB and SCAB, respectively.

emissions such as incorporating measures into the design to ensure energy efficiency beyond the 2008 Title 24 Standards; providing transit connection on site; providing alternative transportation infrastructure; requiring best available alternative fuel technology for community service vehicles; requiring builders, developers, and custom lot owners to include high-speed communication technology to encourage telecommuting and working from home; and implementing specific measures to encourage ride-sharing and use of alternative fuel vehicles. The TMV Project applicant also committed to a voluntary emissions reduction agreement (VERA) with the SJVAPCD that commits it to fully offsetting its entire NO_x, ROG and PM₁₀ emissions in the SJVAB (Appendix J, MMs 4.3-6 through 4.3-14) (Kern County 2009).

In addition, Commercial and Residential Development Activities included in the Proposed TU MSHCP Alternative would occur in the TMV Planning Area, which is a planned development. This would provide more opportunities to mitigate potential emissions effects related to operation. For example, overall commitments can be made to energy efficiency and renewable energy sources that apply across planned developments, voluntary emission reduction agreements can be executed, and requirements can be imposed for encouraging the use of alternative transportation (Appendix J).

Even with implementation of required mitigation measures and BMPs and coordination of planning and development, it is likely that the operation emissions under the Proposed TU MSHCP Alternative would exceed the SJVAPCD thresholds for ROG, NO_x, and PM₁₀ (and, by implication, the PM_{2.5} emissions would contribute to the SJVAB's nonattainment status) and SCAQMD thresholds for ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} during certain periods of operation, resulting in substantial effects.

Table 4.3-4. Operation Emissions from Stationary and Mobile Sources in the San Joaquin Valley Air Basin—Proposed TU MSHCP and Condor Only HCP Alternatives (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	9.10	37.86	48.98	0.11	10.76	1.91
2021	24.44	88.10	127.46	0.39	34.95	3.81
2025	36.31	115.00	180.46	0.65	57.73	5.36
2029	65.18	191.64	317.76	1.28	113.21	9.48
2033	89.31	255.42	425.91	1.70	150.70	12.67
2037	91.13	253.83	431.03	1.84	163.32	12.97
Proposed TU MSHCP Alternative Buildout Year 2041						
Area Sources	44.04	8.86	31.80	0.05	0.94	0.94
Operation—On Road	50.76	253.83	414.49	1.93	175.66	12.85
Year 2041 Totals	94.80	262.69	446.29	1.98	176.60	13.79
Maximum Annual Emissions	94.80	262.69	446.29	1.98	176.60	13.79
Rule 9510 Reduction	—	87.48	—	—	88.30	—
Net Emissions	94.80	175.21	446.29	1.98	88.30	13.79
SJVAPCD Significance Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter

- ¹ ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.
- ² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.
- ³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.
- ⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

Table 4.3-5. Operation Emissions from Mobile Sources in the South Coast Air Basin—Proposed TU MSHCP and Condor Only HCP Alternatives (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	10.06	65.31	81.61	0.20	18.75	3.22
2021	26.15	151.38	210.81	0.66	60.97	6.33
2025	37.08	196.67	296.75	1.10	100.76	8.85
2029	64.65	326.00	521.07	2.17	197.58	15.56
2033	86.03	433.77	693.32	2.89	262.89	20.70
2037	85.91	430.41	701.45	3.14	284.99	21.15
2041	89.08	445.42	727.36	3.39	308.24	22.54
Maximum Annual Emissions	89.08	445.42	727.36	3.39	308.24	22.54
SCAQMD Significance Threshold ¹	10	10	100	27.4	27.4	10

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District

¹ CEQA significance thresholds from South Coast Air Quality Management District 2011 converted to tons per year.

Table 4.3-6. Total Operation Emissions in the San Joaquin Valley and South Coast Air Basin Combined—Proposed TU MSHCP and Condor Only Alternatives (tons per year)¹

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	19.16	103.17	130.59	0.31	29.51	5.13
2021	50.59	239.48	338.27	1.05	95.92	10.14
2025	73.39	311.67	477.21	1.75	158.49	14.21
2029	129.83	517.64	838.83	3.45	310.79	25.04
2033	175.34	689.19	1,119.23	4.59	413.59	33.37
2037	177.04	684.24	1,132.48	4.98	448.31	34.12
Proposed TU MSHCP Alternative Buildout Year 2041						
Area Sources	44.04	8.86	31.8	0.05	0.94	0.94
Operation—On Road	139.84	699.25	1,141.85	5.32	483.90	35.39
Year 2041 Totals	183.88	708.11	1,173.65	5.37	484.84	36.33
Maximum Annual Emissions	183.88	708.11	1,173.65	5.37	484.84	36.33
SJVAPCD Threshold	10 ¹	10 ²	— ³	— ⁴	15 ²	— ⁵
SCAQMD Threshold ⁶	10	10	100	27.4	27.4	10

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SCAQMD = South Coast Air Quality Management District

- ¹ The emissions shown do not account for the emission reductions required under Rule 9510, which were shown previously in Table 4.3-4 for the operation emissions in the San Joaquin Valley Air Basin.
- ² ROG and NOX CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM10 CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM10; exceedance of that threshold contributes to basin nonattainment status. ROGs and NOX are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.
- ³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.
- ⁴ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.
- ⁵ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.
- ⁶ CEQA significance thresholds: from South Coast Air Quality Management District 2011 converted to tons per year.

Due to the nature of development under the Proposed TU MSHCP Alternative, there would be a period when portions of the Disturbance Area would be occupied, but construction would still continue. Unlike many development projects where construction and operations represent two distinct phases, under this development scenario, the two phases would overlap and result in combined emissions in the SJVAB. Emissions in the SCAB would be entirely associated with operation activities and are shown in Table 4.3-5 as discussed previously. It is therefore important to consider emissions that could occur during these overlaps. Construction is assumed to be completed in 2040; thus, concurrent operation and construction emissions are assumed to begin once the first units are completed and occupied up to 2040. Table 4.3-7 shows the combined construction and operation emissions for key years after beginning construction (corresponding to construction phasing assumptions) in the SJVAB.

As stated previously and discussed in Section 4.3.3.5, Mitigation Measures, all Commercial and Residential Development Activities would be subject to project-specific approvals from Federal and state agencies and local jurisdictions. With respect to the specific development approvals, it is anticipated the local jurisdiction would require incorporation of mitigation measures and BMPs into construction practices to minimize and mitigate effects on air quality, as discussed above.

Even with implementation of required mitigation measures and BMPs, it is likely the combined construction and operation emissions associated with the Proposed TU MSHCP Alternative would exceed the SJVAPCD thresholds for ROG, NO_x, and PM₁₀ (and, by implication, the PM_{2.5} emissions would contribute to the SJVAB's nonattainment status) during certain periods of operation, resulting in substantial effects.

Table 4.3-7. Combined Construction and Operation Emissions in the San Joaquin Valley Air Basin—Proposed TU MSHCP and Condor Only Alternatives (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	19.08	77.71	83.18	0.18	14.38	4.16
2021	32.42	114.27	157.96	0.46	37.52	5.12
2025	50.31	147.90	233.01	0.78	61.77	6.81
2029	78.21	223.72	369.18	1.41	116.76	10.89
2033	90.68	258.23	431.57	1.72	151.15	12.77
2037	92.45	256.15	436.61	1.86	163.74	13.05
2041	95.76	263.71	448.55	1.99	176.85	13.82
Maximum Annual Emissions	95.76	263.71	448.55	1.99	176.85	13.82
SJVAPCD Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District

¹ ROG and NO_x CEQA significance thresholds from thresholds: San Joaquin Valley Air Pollution Control District 2002 . PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROG_s and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.

⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROG_s and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

With respect to lead, sulfates, hydrogen sulfide, and vinyl chloride, buildout of the Proposed TU MSHCP Alternative would result in generation of a negligible amount, if any, of these pollutants. Such pollutant emissions are generally associated with industrial land uses that would require air district permits prior to construction or operation; no such land uses are included in the Proposed TU MSHCP Alternative. In addition, the ambient air concentrations for each of these pollutants throughout the study area are below their respective state and/or Federal ambient air quality standards. Therefore, the Proposed TU MSHCP Alternative would not result in substantial emissions of lead, sulfates, hydrogen sulfide, and vinyl chloride.

Plan-Wide Activities

The majority of the Plan-Wide Activities under the Proposed TU MSHCP Alternative would be similar to Existing Ranch Uses under the No Action Alternative, and would result in only minor air emissions. Similar to Existing Ranch Uses, Plan-Wide Activities would be subject to the BMPs and use restrictions required by the Ranchwide Agreement (as currently set forth in the Interim RWMP). These BMPs and use restrictions would include ensuring activities such as farming are conducted in a manner to minimize effects on air quality consistent with the rules and regulations, and in consultation with, the SJVAPCD. To this end, TRC would continue to implement a no-burn policy for agricultural trimmings, implements a dust control plan, and ensure all farming equipment is maintained in good condition.

Some Plan-Wide Activities under the Proposed TU MSHCP would be different compared to the No Action Alternative and could result in additional emissions. For example, recreation access could be expanded under the Proposed TU MSHCP Alternative, which could generate new motor vehicle emissions compared to Existing Ranch Uses under the No Action Alternative. Tours and hikes conducted by the Tejon Ranch Conservancy could be expanded to as many as 30 participants per day above the current level. Assuming each participant would drive a single-passenger vehicle, this activity would generate 60 new one-way trips per day. Compared to the daily trips generated by the Commercial and Residential Development Activities (estimated to be 79,514), the additional trips would be minor and would also result in minor air emissions. In addition, mitigation, monitoring, and management activities could also generate a small amount of operation emissions relative to existing conditions. These activities would be conducted by the staff biologist on site, and that vehicle use would be minor. Even if Plan-Wide Activities result in 60 one-way new vehicle trips per day, the associated emissions would not contribute substantially (less than 0.08%) to the operation emissions related to the Commercial and Residential Development Activities. Therefore, Plan-Wide Activities would not be expected to result in exceedance of any air district thresholds due to the small scale and infrequency of these activities, similar to the No Action Alternative.

4.3.3.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Commercial and Residential Development Activities

Construction

Currently, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such receptors to be exposed to pollutants during construction. The exceptions would be near the existing El Tejon School playground, Tejon Fields and the residences near the north end of Lebec Road. As construction progresses, new residents and workers associated with the proposed Commercial and Residential Development Activities would have potential to be exposed to air pollutant concentrations, namely diesel particulate emissions from onsite construction equipment.

A screening level health risk assessment (HRA) was prepared to estimate the potential cancer risks associated with diesel particulate matter resulting from off-road equipment. The purpose of the analysis was to determine whether sensitive receptors would be exposed to a cancer risk of greater than 10 in one million⁴ and to determine an allowable proximity of future construction activity to sensitive receptors to avoid substantial health effects if the risk exceeded this threshold. Additional details regarding the HRA are provided in Appendix G, Health Risk Assessment.

Due to the uncertainty of the location of actual construction, the associated diesel particulate matter from construction equipment and heavy-duty trucks, and the location of potential receptors, it was not possible to determine exactly where future receptors (either residences or workplaces) would be located at any given time over the course of the construction phase. As a result, a scenario was developed to estimate the cancer risks to potential sensitive receptors⁵ resulting from ongoing

⁴This analysis looks to the SJVAPCD guidance, which provides that cancer risks are significant if the probability of contracting cancer for the Maximally Exposed Individual exceeds 10 in 1 million.

⁵Cancer risks to sensitive receptors, such as residents, were determined for this analysis because such receptors are assumed to be exposed for a longer period (e.g., 24 hours per day, 350 days per year) than workplace receptors (e.g., 8 hours per day, 245 hours per year).

construction activities in their general vicinity. In this scenario, a 5-acre construction site was selected to represent a reasonable simulation of the average acreage in which construction activity (e.g., grading, building construction) would occur over an extended period.

The HRA found that the maximum cancer risk resulting from construction activities associated with Commercial and Residential Development Activities under the Proposed TU MSHCP Alternative would be 0.6 in one million, which would not exceed a cancer risk of 10 in one million. In addition, as identified in Section 4.3.3.6, Mitigation Measures, Commercial and Residential Development Activities in the Covered Lands would be subject to Federal, state, and local air quality protection requirements. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation and BMPs to reduce air emissions. For example, Kern County's approval of the TMV Project requires limiting construction near schools to specific hours and days (Appendix J, MM 4.3-15) (Kern County 2009). Compliance with these requirements would further reduce development-related air quality effects on sensitive receptors. The risk of exposing sensitive receptors to substantial pollutant concentrations during commercial and residential construction under the Proposed TU MSHCP Alternative would be minor.

Operations

Proposed Commercial and Residential Development Activities are not anticipated to include land uses that involve substantial operation sources of TACs (e.g., power plants, chrome plating shops); rather, operation sources of TAC would be associated with CO from vehicle exhaust. The highest CO concentrations are generally found close to congested intersection locations. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (i.e., congested intersection) increases.

To analyze CO hotspots (measured by whether concentrations near an intersection or roadway could exceed the 1-hour or 8-hour CAAQS for CO), it is necessary to know the intersection locations, traffic levels, and adjacent land uses; this information is not known for all the Commercial and Residential Development Activities. Given the rural environment, low background CO concentrations, and decreasing CO emissions from motor vehicles over time, it is unlikely that a CO hotspot area could be created. Use of motor vehicles by residents and end users in development on the Covered Lands would be subject to several Federal and state vehicle and fuel standards, which are intended to reduce emissions of CO and other pollutants. In addition, traffic congestion would be limited through local requirements to avoid adverse conditions (i.e., achieve a good level of service). For example, Kern County's approval of the TMV Project requires the implementation of specific measures to address traffic congestion and limit residential development near I-5 (Appendix J) (Kern County 2009). Compliance with these requirements would reduce development-related air quality effects on sensitive receptors. The risk of exposing sensitive receptors to substantial pollutant concentrations during operation of commercial and residential infrastructure under the Proposed TU MSHCP Alternative would be minor.

Plan-Wide Activities

Plan-Wide Activities are expected to continue at levels similar to Existing Ranch Uses under the No Action Alternative, with the exception that permanent ground disturbance would be limited to 200 acres. As discussed in Section 4.3.2.3, Exposure of Sensitive Receptors to Substantial Pollutant Concentrations, Existing Ranch Uses would result in a minor risk of exposing sensitive receptors to pollutants. As discussed in Section 4.2.3.2, Operation Emissions, additional Plan-Wide Activities under the Proposed TU MSHCP Alternative would result in some minor emissions from expansion of

public recreation and implementation of mitigation, monitoring, and management activities. These minor emissions would not be expected to expose sensitive receptors to substantial additional pollutant concentrations because these activities would be very limited. Therefore, the risk of exposing sensitive receptors to substantial pollutant concentrations from Plan-Wide Activities would be minor, similar to the No Action Alternative.

4.3.3.4 Objectionable Odors

Commercial and Residential Development Activities

Construction

Currently, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such users to be exposed to objectionable odors during construction. The exceptions would be near the existing El Tejon School playground, Tejon Fields, the residences near the north end of Lebec Road, and residents and workers that move into the Covered Lands as development progresses. Potential sources that may emit odors during construction activities associated with Commercial and Residential Development Activities include the use of architectural coatings and solvents.

Commercial and Residential Development Activities would be subject to several Federal, state, and local air quality protection requirements as indicated in Section 4.3.3.6, Mitigation Measures. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation and BMPs to reduce air emissions. For example, compliance with SJVAPCD Rule 4601 would be required, which would limit the amount of volatile organic compounds (VOCs) from architectural coatings and solvents. Therefore, the likelihood that construction associated with Commercial and Residential Development Activities would expose sensitive receptors to substantial objectionable odors under the Proposed TU MHSCP Alternative would be minor.

Operations

According to the SJVAPCD, land uses that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. While most of these uses would not be present in the Covered Lands under the Proposed TU MSHCP Alternative, Commercial and Residential Development Activities may include wastewater treatment facilities, equestrian centers, commercial refuse receptacles, and restaurant uses, which could result in the creation of objectionable odors.

As mentioned previously, Commercial and Residential Development Activities would be subject to several Federal, state, and local air quality protection requirements as indicated in Section 4.3.3.6, Mitigation Measures. For example, Kern County's approval of the TMV Project requires that potential odor problems associated with equestrian or water reclamation facilities be addressed adequately by the project applicant (Kern County 2009, Mitigation Measures 4.3-16 and 4.3-17). Therefore, potential sources of objectionable odors would be addressed and minimized, and the likelihood that operation of commercial and residential infrastructure would expose sensitive receptors to substantial objectionable odors would be minor.

Plan-Wide Activities

Plan-Wide Activities are expected to continue at existing levels similar to Existing Ranch Uses under the No Action Alternative. As discussed in Section 4.3.2.4, Objectionable Odors, Existing Ranch Uses would result in minor emissions associated primarily with agricultural operations and cattle ranching. Additional Plan-Wide Activities under the Proposed TU MSHCP Alternative would also be spread out and located far away from the majority of sensitive receptors. Therefore, the risk that the Proposed TU MSHCP Alternative would result in a substantial increase in the creation of objectionable odors would be minor, similar to the No Action Alternative.

4.3.3.5 Mitigation Measures

BMPs and use restrictions required pursuant to the Ranchwide Agreement (as currently set forth in the Interim RWMP) would reduce the effects of the Proposed TU MSHCP Alternative on air quality. The Proposed TU MSHCP Alternative would also include species-specific conservation measures (Tables 2-3 and 2-4 in Chapter 2, Proposed TU MSHCP and Alternatives), such as dust control requirements, which would reduce potential effects on air quality. If the Service issues an ITP to TRC for incidental take of the 27 species covered under the TU MSHCP, these measures would be enforceable under the ESA through the ITP and applicable conservation easements. In addition, the following mitigation measure is proposed to minimize the air quality effects that may be associated with the Proposed TU MSHCP Alternative.

- **Comply with Applicable Federal, State, and Local Air Quality Requirements.** Activities in the Covered Lands will comply with applicable state, Federal, and local air quality protection laws and regulations, including the Federal Clean Air Act, the California Clean Air Act, and all applicable SJVAPCD, EKAPCD, and SCAQMD rules and regulations. Compliance with these Federal, state and local requirements will be translated into a suite of specific measures that would be imposed at the time individual development projects are approved.
- Generally, air quality protection laws under the Federal and state Clean Air Acts and most Federal air quality regulations adopted by the U.S. Environmental Protection Agency (EPA) are implemented at the state and local levels through adoption of air quality management plans and rules and regulations implemented by the local air pollution control districts. Commercial and Residential Development Activities and any relevant Plan-Wide Activities in the jurisdiction of the SJVAPCD, EKAPCD, and the SCAQMD would be required to meet the rules and regulations of the applicable air quality management plans during individual project-level permitting at the local level.

4.3.4 Condor Only HCP Alternative

4.3.4.1 Construction Emissions

Commercial and Residential Development Activities

Construction emissions associated with Commercial and Residential Development Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

Plan-Wide Activities

Construction emissions associated with Plan-Wide Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

4.3.4.2 Operation Emissions

Commercial and Residential Development Activities

Operation emissions associated with Commercial and Residential Development Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

Plan-Wide Activities

Operation emissions associated with Plan-Wide Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

4.3.4.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Commercial and Residential Development Activities

Construction

The potential for exposure of sensitive receptors to substantial pollutant concentrations associated with construction emissions from Commercial and Residential Development Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

Operations

The potential for exposure of sensitive receptors to substantial pollutant concentrations associated with operation emissions from Commercial and Residential Development Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

Plan-Wide Activities

The potential for exposure of sensitive receptors to substantial pollutant concentrations associated with Plan-Wide Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

4.3.4.4 Objectionable Odors

Commercial and Residential Development Activities

Construction

The potential for the emission of objectionable odors associated with Commercial and Residential Development Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

Operations

The potential for emissions of objectionable odors associated with Commercial and Residential Development Activities under the Condor Only HCP Alternative would be the same as described for the Proposed TU MSHCP Alternative.

Plan-Wide Activities

The potential for the emission of objectionable odors associated with Plan-Wide Activities would be the same as described for the Proposed TU MSHCP Alternative.

4.3.4.5 Mitigation Measures

As described above, the BMPs and use restrictions required pursuant to the Ranchwide Agreement (as currently set forth in the Interim RWMP), would reduce the effects of the Condor Only HCP Alternative on air quality. However, only the species-specific conservation measures for California condor (Table 2-3 in Chapter 2, Proposed TU MSHCP and Alternatives) would be implemented under this alternative. The mitigation measures listed in Section 4.3.3.5, Mitigation Measures, for the Proposed TU MSHCP Alternative are also applicable to the Condor Only HCP Alternative.

4.3.5 CCH Avoidance MSHCP Alternative

4.3.5.1 Construction Emissions

Commercial and Residential Development Activities

Under the CCH Avoidance MSHCP Alternative, Commercial and Residential Development Activities would affect a slightly smaller Disturbance Area. Under this alternative, 4,496 acres would be developed compared with 5,553 acres under the Proposed TU MSHCP Alternative. This would represent approximately 1,037 fewer acres of development and 471 fewer residential units. The smaller amount of development and Disturbance Area would tend to result in slightly lower construction emissions than the Proposed TU MSHCP Alternative. However, because Commercial and Residential Development would be concentrated outside of California condor critical habitat under this alternative, grading would occur in steeper terrain than under the Proposed TU MSHCP Alternative and would require the cut-and-fill of additional soil (approximately 90 million cubic yards) compared with the Proposed TU MSHCP Alternative (75 million cubic yards), which could increase annual emissions during the periods in which grading would occur, depending on the grading schedule and construction activity levels.

Nonetheless, given the similarities between the CCH Avoidance MSHCP Alternative and the Proposed TU MSHCP Alternative, the analysis presented in the Section 4.3.3.1, Construction Emissions, would generally apply to the CCH Avoidance MSHCP Alternative. Similar to the Proposed TU MSHCP Alternative, construction emissions under the CCH Avoidance MSHCP Alternative would have the potential to exceed applicable local jurisdiction air quality thresholds during certain periods of construction even with implementation of the mitigation measure listed in Section 4.3.5.6, Mitigation Measures, resulting in substantial effects.

Plan-Wide Activities

The extent and nature of Plan-Wide Activities under the CCH Avoidance MSHCP Alternative would be similar to Existing Ranch Uses under the No Action Alternative, except permanent ground

disturbance from these activities would be limited to 200 acres. Similar to Existing Ranch Uses, Plan-Wide Activities would be subject to BMPs and use restrictions required pursuant to the Ranchwide Agreement (as currently set forth in the Interim RWMP). These BMPs and use restrictions would require that Plan-Wide Activities be conducted in a manner to minimize effects on air quality consistent with the rules and regulations of the SJVAPCD (e.g., achieving energy code compliance with regard to signs and structures, utilizing off-grid technologies to the extent feasible).

Plan-Wide activities would generate only incidental, insubstantial criteria pollutant emissions associated with filming activities and construction and maintenance of road and utility infrastructure, ancillary ranch structures, and back-country cabins. Development-related infrastructure in open space is analyzed from an air quality perspective in association with the commercial and residential development activities; thus, any construction emissions related to these activities are accounted for in the analysis above. Because ground disturbance would be limited under the CCH Avoidance MSHCP Alternative to 200 acres and also subject to the Ranchwide Agreement use restrictions and BMPs, as well as dust suppression requirements that would be included as an ESA-related conservation measure, construction emissions associated with Plan-Wide Activities would be no greater than would occur under the No Action Alternative and, similarly, would not be expected to result in exceedance of air quality standards.

4.3.5.2 Operation Emissions

Commercial and Residential Development Activities

Commercial and Residential Development Activities under the CCH Avoidance MSHCP Alternative would generate stationary and mobile sources of emissions. Stationary emissions would be associated with sources such as onsite landscaping equipment, natural gas combustion (to facilitate cooking and heating), and use of consumer products. Mobile sources would include on-road vehicle travel. Similar to the Proposed TU MSHCP and Condor Only HCP Alternatives, mobile sources of emissions were assumed to occur in the SJVAB and the SCAB and apportioned between the two basins as discussed above under Operation Assumptions. While it is possible that some travel projected under the CCH Avoidance MSHCP Alternative could also occur in the MDAB, it would be speculative to attempt to apportion any particular amount of vehicle miles travelled (or associated emissions) to this basin. This is because the primary attraction of vehicle trips to and from the MDAB would be associated with the Centennial Project, which is proposed to be partially located within the Antelope Valley portion of the MDAB. Planning for the Centennial Project is still in its early stages and exactly where development might occur is not known. Even if all the daily vehicle trips projected to occur along SR 138 (21,752 trips from Austin-Foust Associates 2011) (Appendix H) were to occur in the MDAB, emissions would still not exceed the thresholds set by the AVAQMD: 3.96 tons per year of ROG (versus 25 tons per year threshold); 19.79 tons per year of NO_x (versus 25 tons per year threshold); 32.31 tons per year of CO (versus 100 tons per year threshold); 0.15 tons per year of SO_x (versus 25 tons per year threshold); 13.69 tons per year of PM₁₀ (versus 15 tons per year threshold); and 1.00 tons per year of PM_{2.5} (versus 15 tons per year threshold). Therefore, for the purposes of the analysis that follows, these trips are apportioned to the SCAB and compared to SCAQMD thresholds.

The results of air quality modeling for long-term emissions for the buildout condition and key years are presented below in Table 4.3-8 for the total estimated operation emissions (mobile and stationary) assumed to occur within the SJVAB. Table 4.3-9 presents the total estimated operation emissions (mobile sources only) assumed to occur within the SCAB. Table 4.3-10 presents the total

estimated operation emissions for the SJVAB and the SCAB combined. Without mitigation, the ROG, NO_x, and PM₁₀ emissions would exceed the SJVAPCD thresholds (and, by implication PM_{2.5} emissions would contribute to the basin's nonattainment status), the ROG, NO_x, CO, PM₁₀, and PM_{2.5} emissions would exceed the SCAQMD thresholds. The total combined emissions would exceed both air districts' thresholds. This would be the case even assuming compliance with Rule 9510 emission reduction requirements of NO_x and PM₁₀.

As mentioned above and discussed in Section 4.3.5.6, Mitigation Measures, all Commercial and Residential Development Activities would be subject to project-specific approvals from Federal, and state agencies and local jurisdictions. Prior to issuance of any specific development-related permits or approvals, it is anticipated the local jurisdiction would require demonstration of BMPs to minimize operation effects on air quality. For example, although this alternative does not include the TMV Project per se, Kern County's approval of the TMV Project requires that emissions shall not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation). Kern County also requires implementation of specific measures to reduce operation emissions such as incorporating measures into the design to ensure energy efficiency beyond the 2008 Title 24 Standards; providing transit connection on site; providing alternative transportation infrastructure; requiring best available alternative fuel technology for community service vehicles; requiring builders, developers, and custom lot owners to include high-speed communication technology to encourage telecommuting and working from home; and implementing specific measures to encourage ride-sharing and use of alternative fuel vehicles (Appendix J, MMs 4.3-6 through 4.3-14) (Kern County 2009). Similar requirements are anticipated to be imposed for development under this alternative.

In addition, the Commercial and Residential Development Activities included in the CCH Avoidance MSHCP Alternative would occur as a planned development. This would provide more opportunities to mitigate potential emissions effects related to operation. For example, overall commitments can be made to energy efficiency and renewable energy sources that apply across planned developments, voluntary emission reduction agreements can be executed, and requirements can be imposed for encouraging the use of alternative transportation (Appendix J).

Even with implementation of these mitigation measures, the operation emissions associated with the CCH Avoidance MSHCP Alternative would likely exceed the SJVAPCD thresholds for ROG, NO_x and PM₁₀ (and, by implication PM_{2.5} emissions would contribute to the SJVAB's nonattainment status), and the SCAQMD thresholds for ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}, resulting in substantial effects.

Table 4.3-8. Operation Emissions (Stationary and Mobile Sources) in the San Joaquin Valley Air Basin—CCH Avoidance MSHCP Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	8.29	34.77	44.89	0.10	9.88	1.75
2021	22.27	81.51	117.62	0.36	32.35	3.51
2025	33.30	107.25	167.81	0.61	53.90	4.99
2029	60.12	180.04	297.56	1.20	106.46	8.89
2033	81.71	238.01	395.59	1.58	140.57	11.79
2037	83.80	237.90	402.62	1.73	153.24	12.12
CCH Avoidance MSHCP Alternative Buildout Year 2041						
Area Sources	39.72	7.99	27.92	0.05	0.84	0.84
Operation—On Road	47.88	239.44	390.99	1.82	165.70	12.12
Year 2041 Totals	87.60	247.43	418.91	1.87	166.54	12.96
Maximum Emissions	87.60	247.43	418.91	1.87	166.54	12.96
Rule 9510 Reduction	—	82.39	—	—	83.27	—
Net Emissions	87.60	165.04	418.91	1.87	83.27	12.96
SJVAPCD Significance Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District.

¹ ROG and NO_x CEQA significance thresholds from SJVAPCD 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the SJVAB is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the SJVAB is designated attainment for SO₂.

⁴ The SJVAB is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

Table 4.3-9. Operation Emissions (Mobile Sources) within the South Coast Air Basin—CCH Avoidance MSHCP Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	9.25	59.99	74.96	0.18	17.22	2.96
2021	24.22	140.20	195.24	0.61	56.47	5.86
2025	34.62	183.65	277.10	1.03	94.09	8.27
2029	60.81	306.65	490.14	2.04	185.85	14.63
2033	80.27	404.75	646.93	2.70	245.30	19.31
2037	80.63	404.00	658.40	2.95	267.50	19.86
2041	84.03	420.17	686.12	3.20	290.77	21.27
Maximum Emissions	84.03	420.17	686.12	3.20	290.77	21.27
SCAQMD Threshold ¹	10	10	100	27.4	27.4	10

Notes:
ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District

¹ CEQA significance thresholds from SCAQMD 2011 converted to tons per year.

Table 4.3-10. Total Operation Emissions—Proposed CCH Avoidance MSHCP Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	17.54	94.76	119.85	0.28	27.10	4.71
2021	46.49	221.71	312.86	0.97	88.82	9.37
2025	67.92	290.90	444.91	1.64	147.99	13.26
2029	120.93	486.69	787.70	3.24	292.31	23.52
2033	161.98	642.76	1,042.52	4.28	385.87	31.10
2037	164.43	641.90	1,061.02	4.68	420.74	31.98
CCH Avoidance MSHCP Alternative Buildout Year 2041						
Area Sources	39.72	7.99	27.92	0.05	0.84	0.84
Operation—On Road	131.91	659.61	1,077.11	5.02	456.47	33.39
Year 2041 Totals	171.63	667.60	1,105.03	5.07	457.31	34.23
Maximum Emissions	171.63	667.60	1,105.03	5.07	457.31	34.23
SJVAPCD Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴
SCAQMD Threshold ⁵	10	10	100	27.4	27.4	10

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SCAQMD = South Coast Air Quality Management District.

¹ ROG and NO_x CEQA significance thresholds from SJVAPCD 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the SJVAB is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the SJVAB is designated attainment for SO₂.

⁴ The SJVAB is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

⁵ CEQA significance thresholds from SCAQMD 2011 converted to tons per year.

As discussed above, due to the nature of development under the CCH Avoidance MSHCP Alternative, there would be a period when portions of the Disturbance Area would be occupied, but construction would still continue. Thus, unlike many development projects where construction and operations represent two distinct phases, under this development scenario, the two phases would overlap and result in combined construction and operation emissions within the SJVAB. Emissions in the SCAB would be entirely associated with operation activities and are shown in Table 4.3-9 as discussed previously. It is therefore important to consider emissions that could occur during these overlaps. Construction is assumed to be completed in 2040; concurrent operation and construction emissions are assumed to begin once the first units are completed and occupied up to 2040. Table 4.3-11 shows the combined construction and operation emissions at four-year intervals after beginning construction (corresponding to construction phasing assumptions) in the SJVAB.

As stated previously, all Commercial and Residential Development Activities would be subject to project-specific approvals from Federal, and state agencies and local jurisdictions. Specifically, a building or grading permit would be required from the local jurisdiction prior to construction. It is anticipated that prior to issuance of the required permits, the local jurisdiction will require demonstration of incorporation of BMPs into construction practices to minimize effects on air quality as discussed above.

The emissions shown in Table 4.3-11 do not account for the emission reductions required under Rule 9510, which were shown previously in Tables 4.3-3 and 4.3-8 for the construction and operation emissions, respectively, in the SJVAB. Even with implementation of required mitigation measures and BMPs, it is likely the combined construction and operation emissions associated with the Proposed TU MSHCP Alternative would exceed the SJVAPCD thresholds for ROG, NO_x, and PM₁₀ (and, by implication, the PM_{2.5} emissions would contribute to the SJVAB's nonattainment status) during certain periods of operation, resulting in substantial effects.

Table 4.3-11. Combined Construction and Operation Emissions within the San Joaquin Valley Air Basin—CCH Avoidance MSHCP Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	18.27	74.62	79.09	0.17	13.50	4.00
2021	30.25	107.68	148.12	0.43	34.92	4.82
2025	47.30	140.15	220.36	0.74	57.94	6.44
2029	73.15	212.12	348.98	1.33	110.01	10.30
2033	83.08	240.82	401.25	1.60	141.02	11.89
2037	85.12	240.22	408.20	1.75	153.66	12.20
2041	87.60	247.43	418.91	1.87	166.54	12.96
Maximum Emissions	87.60	247.43	418.91	1.87	166.54	12.96
SJVAPCD Significance Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District.

¹ ROG and NO_x CEQA thresholds from SJVAPCD 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the SJVAB is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the SJVAB is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the SJVAB is designated attainment for SO₂.

⁴ The SJVAB is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

With respect to lead, sulfates, hydrogen sulfide, and vinyl chloride, buildout of the CCH Avoidance MSHCP Alternative would result in a negligible amount, if any, of these pollutants. Such pollutant emissions are generally associated with industrial land uses that would require air district permits prior to construction or operation; no such land uses are included in the CCH Avoidance MSHCP Alternative. In addition, the ambient air concentrations for each of these pollutants throughout the study area are below their respective state and/or Federal ambient air quality standards.

Plan-Wide Activities

The majority of the Plan-Wide Activities that would occur under the CCH Avoidance MSHCP Alternative would be similar to Existing Ranch Uses under the No Action Alternative, and would result in only minor air emissions. Similar to Existing Ranch Uses, Plan-Wide Activities would be subject to the BMPs and use restrictions required by the Ranchwide Agreement (as currently set forth in the Interim RWMP). These BMPs and use restrictions include ensuring activities such as farming are conducted in a manner to minimize effects on air quality consistent with the rules and regulations of, and in consultation with, the SJVAPCD. To this end, TRC would continue to implement a no-burn policy for agricultural trimmings, implement a dust control plan, and ensure all farming equipment is maintained in good condition.

Some Plan-Wide Activities under the Proposed TU MSHCP would be different compared to the No Action Alternative and could result in additional emissions. For example, recreational access could be expanded under the CCH Avoidance MSHCP Alternative, which could generate new motor vehicle emissions compared to Existing Ranch Uses under the No Action Alternative. Tours and hikes conducted by the Tejon Ranch Conservancy could be expanded to as many as 30 participants per day above the current level. Assuming each participant would drive a single-passenger vehicle, this activity would generate 60 new one-way trips per day. Compared to the daily trips generated by Commercial and Residential Development Activities (estimated to be 75,066 trips per day), the additional trips would be minor and would also result in minor air emissions. In addition, mitigation, monitoring, and management activities could also generate a small amount of operation emissions relative to existing conditions. These activities would be conducted by the staff biologist on site, and that vehicle use would be minor.

If it is assumed that Plan-Wide Activities could contribute approximately 60 one-way new vehicle trips per day, the associated emissions would not contribute substantially (0.08%) to the operation emissions related to the Commercial and Residential Development Activities. Thus, overall, Plan-Wide Activities would not be expected to result in exceedance of any air district thresholds due to the small scale and infrequency of these activities similar to the No Action Alternative.

4.3.5.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Commercial and Residential Development Activities

Construction

Commercial and Residential Development Activities under the CCH Avoidance MSHCP Alternative would be similar to those that would occur under the Proposed TU MSHCP Alternative except there would be 471 fewer residential units. Although there would be fewer units constructed, the overall density of the development would be greater. Because of the similarities between the Proposed TU MSHCP and the CCH Avoidance MSHCP Alternatives, the HRA conducted for the Proposed TU MSHCP Alternative provides a conservative scenario that would also apply to the CCH Avoidance MSHCP Alternative. As discussed under Section 4.3.3.3, Exposure of Sensitive Receptors to Substantial Pollutant Concentrations, the HRA found that the potential construction-related emissions effects would not exceed cancer risk thresholds. Additional details regarding the HRA are provided in Appendix G, Health Risk Assessment.

In addition, as identified in Section 4.3.5.6, Mitigation Measures, development in the Covered Lands would be subject to several Federal, state, and local air quality protection requirements. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation measures and BMPs to reduce air emissions. For example, although this alternative does not include the TMV Project per se, Kern County's approval of the TMV Project requires limiting construction near schools to specific hours and days (Appendix J, MM 4.3-15) (Kern County 2009). Compliance with these requirements would further reduce development-related air quality effects on sensitive receptors. Similar requirements are anticipated to be imposed for development under this alternative. The risk of exposing sensitive receptors to substantial pollutant concentrations during construction under the CCH Avoidance MSHCP Alternative would be minor.

Operations

Commercial and Residential Development Activities under the CCH Avoidance MSHCP Alternative would be similar to those that would occur under the Proposed TU MSHCP Alternative except there would be 471 fewer residential units. Commercial and Residential Development is not anticipated to include land uses that involve substantial operation sources of TACs (e.g., power plants, chrome plating shops); rather, operation sources of TAC would be associated with CO from vehicle exhaust. The highest CO concentrations are generally found close to congested intersection locations.

As noted in Section 4.3.3.3, Exposure of Sensitive Receptors to Substantial Pollutant Concentrations, to analyze CO hotspots, it would be necessary to know intersection locations, traffic levels, and adjacent land uses, information that is not known for all of the Commercial and Residential Development Activities proposed under this alternative. Given the low background CO concentrations and decreasing CO emissions from motor vehicles over time, it is unlikely that a CO hotspot area could be created. Use of motor vehicles by residents and end users in developed areas of the Covered Lands would be subject to several Federal and state vehicle and fuel standards, which are intended to reduce emissions of CO and other pollutants. In addition, traffic congestion would be limited through local requirements to avoid adverse conditions (i.e., achieve a good level of service). For example, although this alternative does not include the TMV Project per se, Kern County's approval of the TMV Project requires the implementation of specific measures to address traffic congestion and limit residential development near I-5 (Appendix J) (Kern County 2009). Compliance with these requirements would reduce development-related air quality effects on sensitive receptors. Similar requirements are anticipated to be imposed for development under this alternative. The risk of exposure of sensitive receptors to substantial pollutant concentrations from operation of developed infrastructure under the CCH Avoidance MSHCP Alternative would be minor.

Plan-Wide Activities

Plan-Wide Activities are expected to continue at levels similar to Existing Ranch Uses under the No Action Alternative. As discussed in Section 4.3.2.3, Exposure of Sensitive Receptors to Substantial Pollutant Concentrations, Existing Ranch Uses would result in a low risk of exposing sensitive receptors to pollutants. As discussed in Section 4.3.5.2, Operation Emissions, additional Plan-Wide Activities under the CCH Avoidance MSHCP Alternative would result in some minor emissions from expansion of public recreation and implementation of mitigation, monitoring, and management activities. These minor emissions would not be expected to expose sensitive receptors to substantial pollutant concentrations because these activities would be very limited and infrequent. Therefore, the risk of exposure of sensitive receptors to substantial pollutant concentrations from Plan-Wide Activities would be minor, similar to the No Action Alternative.

4.3.5.4 Objectionable Odors

Commercial and Residential Development Activities

Construction

Commercial and Residential Development Activities under the CCH Avoidance MSHCP Alternative would be similar to those that would occur under the Proposed TU MSHCP Alternative except that there would be 471 fewer residential units. Currently, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such users to be exposed to objectionable odors during construction. The exceptions would be near the existing El Tejon School

playground, Tejon Fields, the residences near the north end of Lebec Road, and residents and workers that move into the Covered Lands as development progresses. Potential sources that may emit odors during construction activities associated with Commercial and Residential Development Activities include the use of architectural coatings and solvents.

Commercial and Residential Development Activities would be subject to several Federal, state, and local air quality protection requirements as indicated in Section 4.3.5.6, Mitigation Measures. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation measures and BMPs to reduce air emissions. For example, compliance with SJVAPCD Rule 4601 would be required, which would limit the amount of VOCs from architectural coatings and solvents. Therefore, the likelihood of construction activities associated with Commercial and Residential Development Activities exposing sensitive receptors to substantial objectionable odors would be minor.

Operations

According to the SJVAPCD, land uses that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. While most of these uses would not be present in the Covered Lands under the CCH Avoidance MSHCP Alternative, Commercial and Residential Development Activities may include wastewater treatment facilities, equestrian centers, commercial refuse receptacles, and restaurant uses, which could result in the creation of objectionable odors.

As mentioned previously, Commercial and Residential Development Activities would be subject to several Federal, state, and local air quality protection requirements. For example, Kern County's approval of the TMV Project requires that potential odor problems associated with equestrian or water reclamation facilities be addressed adequately by the project applicant (Kern County 2009, Mitigation Measures 4.3-16 and 4.3-17). Therefore, potential sources of objectionable odors would be addressed and minimized, and the likelihood that operation of developed infrastructure under the CCH MSHCP Avoidance Alternative would expose sensitive receptors to substantial objectionable odors would be minor.

Plan-Wide Activities

Plan-Wide Activities are expected to continue at existing levels similar to Existing Ranch Uses under the No Action Alternative. As discussed in Section 4.3.2.4, Objectionable Odors, Existing Ranch Uses would result in minor emissions associated primarily with agricultural operations and cattle ranching. Additional Plan-Wide Activities under the CCH Avoidance MSHCP Alternative would also be spread out and located far away from the majority of sensitive receptors. Therefore, the risk of creating objectionable odors under the CCH Avoidance MSHCP Alternative would be minor, similar to the No Action Alternative.

4.3.5.5 Mitigation Measures

As described above, the BMPs and use restrictions required pursuant to the Ranchwide Agreement (as currently set forth in the Interim RWMP) would reduce the effects of the CCH Avoidance MSHCP Alternative on air quality. Species-specific conservation measures, similar to those provided in Tables 2-3 and 2-4 in Chapter 2, Proposed TU MSHCP Alternative, would also be implemented to avoid, mitigate, and minimize the effects of the Covered Activities on the Covered Species, which would also benefit air quality (e.g., dust suppression measures). Conservation measures would be

enforceable under the ESA. In addition, the mitigation measure listed in Section 4.3.3.6, Mitigation Measures, for the Proposed TU MSHCP Alternative would also be implemented under the CCH Avoidance MSHCP Alternative.

4.3.6 Kern County General Plan Buildout Alternative

4.3.6.1 Construction Emissions

Commercial and Residential Development Activities

Construction in the Covered Lands under the Kern County General Plan Buildout would occur in the SJVAB and the MDAB. Construction would generate the same types of air emissions as discussed under the Proposed TU MSHCP Alternative (ozone precursor emissions from construction, mobile source emissions, and diesel emissions); however, there would be additional emissions associated with the greater Disturbance Area associated with Commercial and Residential Development Activities. Air pollutant emissions during construction would vary substantially from day to day, depending on the level of construction activity, the specific type of operation, and prevailing weather conditions.

Table 4.3-12 summarizes potential construction emissions in the SJVAB. Table 4.3-13 summarizes the potential construction emissions in the MDAB, and Table 4.3-14 summarizes the potential construction emissions in both air basins combined. Without mitigation, ROG and NO_x emissions in the SJVAB would exceed the SJVAPCD thresholds. The total NO_x emissions would exceed the EKAPCD threshold. As further indicated in Table 4.3-12, this would be the case even assuming mandatory emissions reductions of NO_x required pursuant to Rule 9510.

As noted previously and discussed in Section 4.3.6.6, Mitigation Measures, all Commercial and Residential Development Activities would be subject to Federal, state, and local air quality protection requirements. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation measures and BMPs to reduce air emissions as part of its environmental review process. For example, Kern County's approval of the TMV Project requires that emissions not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation). Kern County also requires submittal and implementation of a Dust Control Plan approved by the SJVAPCD, including specific dust control BMPs; compliance with all other requirements of the SJVAPCD Fugitive Dust Rules; use alternative fuel technologies for construction vehicles; and selection of sustainable construction materials (Appendix J, MMs 4.3-1 through 4.3-5) (Kern County 2009).

Because some development under the Kern County General Plan Buildout Alternative may not be part of a larger planned development, there would not be the same potential to coordinate mitigation efforts to reduce construction emissions compared with the other proposed action alternatives. In addition, smaller-lot developments may not result in the same requirements to implement BMPs during construction that would be triggered by a larger planned development; however, it is anticipated that similar measures would be required during review and approval of a local grading or building permit.

Even with implementation of required mitigation measures and BMPs, it is likely SJVAPCD and EKAPCD thresholds would be exceeded during certain periods of construction under the Kern County General Plan Buildout Alternative, resulting in substantial effects.

Table 4.3-12. Construction Emissions in the San Joaquin Valley Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2013	3.56	25.76	15.36	0.03	1.87	1.52
2014	7.03	22.76	17.76	0.04	2.10	1.31
2015	7.12	20.67	17.20	0.04	1.97	1.17
2016	6.87	18.73	16.68	0.04	1.85	1.04
2017	9.98	39.85	34.20	0.07	3.62	2.25
2018	6.60	16.79	17.94	0.04	1.91	0.86
2019	6.38	15.18	17.54	0.04	1.79	0.75
2020	6.22	13.80	17.27	0.04	1.70	0.65
2021	10.05	26.92	31.70	0.08	2.98	1.34
2022	7.58	11.78	17.36	0.04	1.78	0.50
2023	7.47	10.76	17.12	0.04	1.72	0.44
2024	7.42	9.96	17.04	0.04	1.68	0.39
2025	18.24	44.75	71.47	0.18	5.14	1.95
2026	13.91	22.02	40.13	0.11	3.20	0.82
2027	13.91	22.02	40.13	0.11	3.20	0.82
2028	13.86	21.94	39.98	0.11	3.18	0.82
2029	15.07	32.70	52.39	0.13	3.95	1.44
2030	11.40	11.76	28.34	0.08	2.29	0.37
2031	11.40	11.76	28.34	0.08	2.29	0.37
2032	11.44	11.81	28.45	0.08	2.30	0.37
2033	4.38	8.90	19.37	0.05	1.05	0.29
2034	3.75	5.99	13.63	0.03	0.81	0.16
2035	3.67	5.32	13.53	0.03	0.77	0.12
2036	3.69	5.34	13.58	0.03	0.77	0.12
2037	4.64	9.00	23.47	0.06	1.13	0.25
2038	3.74	5.68	14.66	0.04	0.77	0.12
2039	3.72	5.66	14.60	0.04	0.77	0.12
2040	3.45	4.09	10.99	0.03	0.59	0.08
Maximum Annual Emissions	18.24	44.75	71.47	0.18	5.14	1.95
Rule 9510 Reduction	—	8.14	—	—	0.76	—
Net Emissions	18.24	36.61	71.47	0.18	4.38	1.95
SJVAPCD Significance Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District

¹ ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.

⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

Table 4.3-13. Construction Emissions in the Mojave Desert Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2021	3.49	8.37	9.92	0.02	0.75	0.42
2022	2.67	3.44	5.14	0.01	0.38	0.15
2023	2.63	3.13	5.08	0.01	0.36	0.13
2024	2.62	2.88	5.07	0.01	0.34	0.11
2025	3.30	6.41	9.97	0.02	0.77	0.36
2026	2.59	2.63	5.01	0.01	0.33	0.10
2027	2.59	2.63	5.01	0.01	0.33	0.10
2028	2.58	2.62	4.99	0.01	0.33	0.10
2029	3.21	5.83	9.60	0.02	0.59	0.26
2030	2.50	1.92	4.87	0.01	0.29	0.06
2031	2.50	1.92	4.87	0.01	0.29	0.06
2032	2.51	1.93	4.89	0.01	0.29	0.06
2033	3.00	4.05	9.31	0.02	0.48	0.15
2034	2.49	1.92	4.85	0.01	0.29	0.06
2035	2.47	1.68	4.80	0.01	0.27	0.04
2036	2.48	1.69	4.82	0.01	0.27	0.04
2037	2.92	3.28	9.20	0.02	0.44	0.11
2038	2.47	1.68	4.80	0.01	0.27	0.04
2039	2.46	1.67	4.79	0.01	0.27	0.04
2040	2.37	1.22	3.64	0.01	0.21	0.03
Maximum Annual Emissions	3.30	6.41	9.97	0.02	0.77	0.36
EKAPCD Significance Threshold	25 ¹	25 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; EKAPCD = Eastern Kern Air Pollution Control District

¹ CEQA significance thresholds: Damo pers. comm. 2008. ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status. The Mojave Desert Air Basin is designated nonattainment for PM₁₀ (state and Federal); exceedance of that threshold contributes to the basin nonattainment status.

² The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for CO.

³ The Mojave Desert Air Basin is designated as attainment (state) or unclassifiable (Federal) for SO₂.

⁴ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for PM_{2.5}.

Table 4.3-14. Total Construction Emissions in the San Joaquin Valley Air Basin and the Mojave Desert Air Basin Combined—Kern County General Plan Buildout Alternative (tons per year)¹

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2013	3.56	25.76	15.36	0.03	1.87	1.52
2014	7.03	22.76	17.76	0.04	2.10	1.31
2015	7.12	20.67	17.20	0.04	1.97	1.17
2016	6.87	18.73	16.68	0.04	1.85	1.04
2017	9.98	39.85	34.20	0.07	3.62	2.25
2018	6.60	16.79	17.94	0.04	1.91	0.86
2019	6.38	15.18	17.54	0.04	1.79	0.75
2020	6.22	13.80	17.27	0.04	1.70	0.65
2021	13.54	35.29	41.62	0.10	3.73	1.76
2022	10.25	15.22	22.50	0.05	2.16	0.65
2023	10.10	13.89	22.20	0.05	2.08	0.57
2024	10.04	12.84	22.11	0.05	2.02	0.50
2025	21.54	51.16	81.44	0.20	5.91	2.31
2026	16.50	24.65	45.14	0.12	3.53	0.92
2027	16.50	24.65	45.14	0.12	3.53	0.92
2028	16.44	24.56	44.97	0.12	3.51	0.92
2029	18.28	38.53	61.99	0.15	4.54	1.70
2030	13.90	13.68	33.21	0.09	2.58	0.43
2031	13.90	13.68	33.21	0.09	2.58	0.43
2032	13.95	13.74	33.34	0.09	2.59	0.43
2033	7.38	12.95	28.68	0.07	1.53	0.44
2034	6.24	7.91	18.48	0.04	1.10	0.22
2035	6.14	7.00	18.33	0.04	1.04	0.16
2036	6.17	7.03	18.40	0.04	1.04	0.16
2037	7.56	12.28	32.67	0.08	1.57	0.36
2038	6.21	7.36	19.46	0.05	1.04	0.16
2039	6.18	7.33	19.39	0.05	1.04	0.16
2040	5.82	5.31	14.63	0.04	0.80	0.11
Maximum Annual Emissions	21.54	51.16	81.44	0.20	5.91	2.31
SJVAPCD Significance Threshold	10 ²	10 ²	— ³	— ⁴	15	— ⁵
EKAPCD Significance Threshold	25 ⁶	25 ⁶	— ⁷	— ⁸	15 ⁶	— ⁹

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District; EKAPCD = Eastern Kern Air Pollution Control District

¹ The emissions shown in Table 4.3-14 do not account for the emission reductions required under Rule 9510, which were shown previously in Table 4.3-12 for the construction emissions in the San Joaquin Valley Air Basin.

² ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROG_s and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

- ³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.
 - ⁴ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.
 - ⁵ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROG and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.
 - ⁶ CEQA significance thresholds from Damo pers. comm. 2008. ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status. The Mojave Desert Air Basin is designated nonattainment for PM₁₀ (state and Federal); exceedance of that threshold contributes to the basin nonattainment status.
 - ⁷ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for CO.
 - ⁸ The Mojave Desert Air Basin is designated as attainment (state) or unclassifiable (Federal) for SO₂.
 - ⁹ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for PM_{2.5}.
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Existing Ranch Uses

The extent and nature of the Existing Ranch Uses under the Kern County General Plan Buildout Alternative would be similar to those under the No Action Alternative. Existing Ranch Uses would generate only incidental, insubstantial criteria pollutant emissions associated with filming activities and construction and maintenance of road and utility infrastructure, ancillary ranch structures, and back-country cabins.

As described in Chapter 2, Proposed TU MSHCP and Alternatives, the limitations of the Ranchwide Agreement would not apply under this alternative. However, even in the absence of the Ranchwide Agreement, historic ranch practices as reflected in the Interim RWMP are anticipated to continue (although they cannot be assured), and compliance with legal requirements governing ground disturbing activities directly affecting air quality would apply. In addition, because most Existing Ranch Uses would have only minor effects on air quality, it is unlikely that Existing Ranch Uses under the Kern County General Plan Buildout Alternative would result in emissions that would exceed applicable air quality standards.

4.3.6.2 Operation Emissions

Commercial and Residential Development Activities

Under the Kern County General Plan Buildout Alternative, Commercial and Residential Development Activities would generate onroad vehicle travel, which would result in mobile-source emissions that include ozone precursor pollutants (ROG and NO_x), PM₁₀, PM_{2.5}, and CO. In addition, emissions would result from area sources such as onsite landscaping equipment, natural gas combustion (to facilitate cooking and heating), and use of consumer products. Although the development would be located solely in the SJVAB and the MDAB, vehicle trips could affect the SCAB, as described below.

Stationary sources of operation emissions would occur in the SJVAB and MDAB. Mobile sources of emissions were assumed to occur in the SJVAB, MDAB, and the SCAB and were apportioned between the two basins as discussed above under Operation Assumptions. Similar to the Proposed TU MSHCP Alternative, potential vehicle trips associated with the Centennial Project were attributed to the SCAB. This is because it would be speculative to attempt to apportion any particular amount of vehicle miles travelled (or associated emissions) related to this project. Planning for the Centennial Project is still in its early stages and exactly where development might occur is not known. If, however, all the daily vehicle trips projected to occur along SR 138 (34,784 in Austin-Foust Associates 2011) (Appendix H) were to occur within the MDAB, emissions would exceed the thresholds set by the AVAQMD for NO_x and PM₁₀: 6.07 tons per year of ROG (versus 25 tons per year

threshold); 30.26 tons per year of NO_x (versus 25 tons per year threshold); 49.45 tons per year of CO (versus 100 tons per year threshold); 0.24 tons per year of SO_x (versus 25 tons per year threshold); 21.41 tons per year of PM₁₀ (versus 15 tons per year threshold); and 1.57 tons per year of PM_{2.5} (versus 15 tons per year threshold). However, this is not considered likely to occur; therefore the analysis that follows attributes these motor vehicle emissions to the SCAB.

The results of air quality modeling for long-term emissions for the buildout condition and key years are presented below. Table 4.3-15 presents total estimated operation emissions (mobile and stationary) assumed to occur in the SJVAB. Table 4.3-16 presents the total estimated operation emissions (mobile and stationary) assumed to occur in the MDAB. Table 4.3-17 presents the total estimated operation emissions (stationary) assumed to occur in the SCAB. Table 4.3-18 presents the total estimated operation emissions for all air basins combined. Without mitigation, the ROG, NO_x, and PM₁₀ emissions would exceed the SJVAPCD (and, by implication, PM_{2.5} emissions would contribute to the SJVAB nonattainment status) and EKAPCD thresholds; ROG, NO_x, CO, PM₁₀, and PM_{2.5} emissions would exceed the SCAQMD thresholds; and the combined ROG, NO_x, CO, PM₁₀, and PM_{2.5} emissions would also exceed applicable thresholds. This would be the case even assuming compliance with Rule 9510 emission reduction requirements of NO_x and PM₁₀.

As mentioned above, all Commercial and Residential Development Activities would be subject to approvals from Federal and state agencies and local jurisdictions as indicated in Section 4.3.6.6, Mitigation Measures. Prior to issuance of any permits or approvals, it is anticipated the local jurisdiction would require demonstration of BMPs to minimize operation effects on air quality. For example, Kern County's approval of the TMV Project requires that emissions not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation). Kern County also requires implementation of specific measures to reduce operation emissions such as incorporating measures into the design to ensure energy efficiency beyond the 2008 Title 24 Standards; providing transit connection on site; providing alternative transportation infrastructure; requiring best available alternative fuel technology for community service vehicles; requiring builders, developers, and custom lot owners to include high-speed communication technology to encourage telecommuting and working from home; and implementing specific measures to encourage ride-sharing and use of alternative fuel vehicles. (Appendix J, MMs 4.3-6 through 4.3-14) (Kern County 2009).

Because some development under the Kern County General Plan Buildout Alternative may not be part of a larger planned development, there would not be the same potential to coordinate mitigation efforts to reduce operation emissions compared with the other proposed action alternatives. In addition, smaller-lot developments may not result in the same requirements to implement BMPs during operation that would be triggered by a larger planned development; however, it is anticipated that similar measures would be required during review and approval of a local grading or building permit.

Even with implementation of required mitigation measures and BMPs, it is likely operation emissions under the Kern County General Plan Buildout Alternative would exceed the SJVAPCD and EKAPCD thresholds for ROG, NO_x, and PM₁₀ (and, by implication, PM_{2.5}) and SCAQMD thresholds for ROG, NO_x, CO, PM₁₀, and PM_{2.5}, resulting in substantial effects.

Table 4.3-15. Operation Emissions in the San Joaquin Valley Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	9.10	37.86	48.98	0.11	10.76	1.91
2021	24.44	88.10	127.46	0.39	34.95	3.81
2025	73.40	147.40	264.59	0.85	79.57	11.66
2029	137.72	245.70	474.78	1.67	156.33	21.70
2033	197.97	336.50	661.30	2.31	215.37	30.99
2037	234.34	352.43	732.93	2.66	249.18	37.06
Kern County General Plan Buildout Alternative Buildout Year 2041						
Area Sources	199.37	14.93	217.05	0.15	24.85	24.85
Operation—On Road	73.43	366.16	598.40	2.85	259.02	18.97
Year 2041 Totals	272.80	381.09	815.45	3.00	283.87	43.82
Maximum Annual Emissions	272.80	381.09	815.45	3.00	283.87	43.82
Rule 9510 Reduction	—	126.90	—	—	141.94	—
Net Emissions	272.80	244.19	815.45	3.00	141.94	43.82
SJVAPCD Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter

¹ ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.

⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

Table 4.3-16. Operation Emissions in the Mojave Desert Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	—	—	—	—	—	—
2021	—	—	—	—	—	—
2025	23.31	12.98	43.38	0.05	6.53	3.47
2029	46.09	22.79	82.28	0.10	12.98	6.87
2033	69.21	34.23	123.57	0.14	19.50	10.32
2037	91.72	42.34	160.24	0.19	25.91	13.68
Kern County General Plan Buildout Alternative Buildout Year 2041						
Area Sources	105.50	3.93	123.27	0.06	15.92	15.92
Operation—On Road	8.64	46.12	73.98	0.17	16.42	1.14
Year 2041 Totals	114.14	50.05	197.25	0.23	32.34	17.06
Maximum Annual Emissions	114.14	50.05	197.25	0.23	32.34	17.06
EKAPCD Threshold	25 ¹	25 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; EKAPCD = Eastern Kern Air Pollution Control District

¹ CEQA significance thresholds from Damo pers. comm. 2008. ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated ROGs and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status. The Mojave Desert Air Basin is designated nonattainment for PM₁₀ (state and Federal); exceedance of that threshold contributes to the basin nonattainment status.

² The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for CO.

³ The Mojave Desert Air Basin is designated as attainment (state) or unclassifiable (Federal) for SO₂.

⁴ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for PM_{2.5}.

Table 4.3-17. Operation Emissions in the South Coast Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	10.06	65.31	81.61	0.20	18.75	3.22
2021	26.15	151.38	210.81	0.66	60.97	6.33
2025	47.45	251.42	379.13	1.43	130.66	11.49
2029	82.80	416.59	666.44	2.82	256.46	20.20
2033	113.26	569.69	911.44	3.87	351.24	27.66
2037	119.07	594.95	971.05	4.43	402.07	29.86
2041	128.87	642.54	1,050.09	5.01	454.52	33.28
Maximum Annual Emissions	128.87	642.54	1,050.09	5.01	454.52	33.28
SCAQMD Threshold ¹	10	10	100	27.4	27.4	10

Note: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SCAQMD = South Coast Air Quality Management District

¹ Significance thresholds from South Coast Air Quality Management District 2011 converted to tons per year.

The total operation emissions shown in Table 4.3-18 do not account for the emission reductions required under Rule 9510, which were shown previously in Table 4.3-15 for the operation emissions in the SJVAB.

Table 4.3-18. Total Operation Emissions—Kern County General Plan Buildout Alternative (tons per year)

	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	19.16	103.17	130.59	0.31	29.51	5.13
2021	50.59	239.48	338.27	1.05	95.92	10.14
2025	144.16	411.80	687.10	2.33	216.76	26.62
2029	266.61	685.08	1,223.50	4.59	425.77	48.77
2033	380.44	940.42	1,696.31	6.32	586.11	68.97
2037	445.13	989.72	1,864.22	7.28	677.16	80.60
Kern County General Plan Buildout Alternative Buildout Year 2041						
Area Sources	304.87	18.86	340.32	0.21	40.77	40.77
Operation—On Road	201.94	1,054.82	1,722.47	8.03	729.96	53.39
Year 2041 Totals	515.81	1,073.68	2,062.79	8.24	770.73	94.16
Maximum Annual Emissions	515.81	1,073.68	2,062.79	8.24	770.73	94.16
SJVAPCD Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴
EKAPCD Threshold	25 ⁵	25 ⁵	— ⁶	— ⁷	15 ⁵	— ⁸
SCAQMD Threshold ⁹	10	10	100	27.5	27.4	10

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District; EKAPCD = Eastern Kern Air Pollution Control District; SCAQMD = South Coast Air Quality Management District

- ¹ ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROGs and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.
- ² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.
- ³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.
- ⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROGs and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.
- ⁵ CEQA significance thresholds from Damo pers.comm. 2008. ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated ROGs and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status. The Mojave Desert Air Basin is designated nonattainment for PM₁₀ (state and Federal); exceedance of this threshold contributes to the basin nonattainment status.
- ⁶ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for CO.
- ⁷ The Mojave Desert Air Basin is designated as attainment (state) or unclassifiable (Federal) for SO₂.
- ⁸ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for PM_{2.5}.
- ⁹ Significance thresholds from SCAQMD 2011 converted to tons per year.

Due to the nature of development under the Kern County General Plan Buildout Alternative, there would be a period when portions of the Disturbance Area associated with Commercial and Residential Development Activities would be occupied, but construction would continue. Unlike many development projects where construction and operations represent two distinct phases, under this development scenario the two phases would overlap and would result in combined emissions in the SJVAB and the MDAB. Emissions in the SCAB would be entirely associated with operation activities and are shown in Table 4.3-17 as discussed previously. It is therefore important to consider emissions that could occur during these overlaps. Under this alternative, this would include combined construction and operation emissions in the SJVAB and MDAB. Construction is assumed to be completed in 2040; thus, there would be concurrent operation and construction emissions until the first units are completed and occupied up to 2040. Tables 4.3-19 and 4.3-20 show the combined construction and operation emissions at key years (corresponding to the analysis years shown in Tables 4.3-15 and 4.3-16 for the SJVAB and the MDAB, respectively).

As stated previously, all Commercial and Residential Development Activities would be subject to project-specific approvals from Federal, and state agencies and local jurisdictions. Specifically, a building or grading permit would be required from the local jurisdiction prior to construction. It is anticipated that prior to issuance of the required permits, the local jurisdiction would require demonstration of incorporation of BMPs into construction practices to minimize effects on air quality as discussed above.

The emissions shown in Table 4.3-14 do not account for the emission reductions required under Rule 9510, which were shown previously in Tables 4.3-12 and 4.3-15 for the construction and operation emissions, respectively, in the SJVAB. Even after mitigation, the combined construction and operation ROG, NO_x, and PM₁₀ emissions are likely to exceed the SJVAPCD and EKAPCD thresholds (and, by implication, PM_{2.5} emissions would contribute to the nonattainment status for these air basins), resulting in substantial effects.

Table 4.3-19. Combined Construction and Operation Emissions in the San Joaquin Valley Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	19.1	77.7	83.2	0.2	14.4	4.2
2021	34.5	115.0	159.2	0.5	37.9	5.1
2025	139.1	443.6	715.2	2.5	215.4	25.1
2029	235.6	695.0	1,193.6	4.6	416.7	43.3
2033	315.6	915.1	1,592.1	6.2	567.7	58.9
2037	358.1	956.4	1,727.5	7.2	652.4	67.2
2041	401.7	1,023.6	1,865.5	8.0	738.4	77.1
Maximum Annual Emissions	401.7	1,023.6	1,865.5	8.0	738.4	77.1
SJVAPCD Threshold	10 ¹	10 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter

¹ ROG and NO_x CEQA significance thresholds: San Joaquin Valley Air Pollution Control District 2002. PM₁₀ CEQA threshold is recommended by SJVAPCD staff. The San Joaquin Valley Air Basin is designated nonattainment (state) and attainment (Federal) for PM₁₀; exceedance of that threshold contributes to basin nonattainment status. ROG_s and NO_x are precursors to ozone, and the San Joaquin Valley Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status.

² The Kern County portion of the San Joaquin Valley Air Basin is designated attainment (state) or unclassifiable/attainment (Federal) for CO.

³ The Kern County portion of the San Joaquin Valley Air Basin is designated attainment for SO₂.

⁴ The San Joaquin Valley Air Basin is designated nonattainment for PM_{2.5}; because ROG_s and NO_x are precursors to PM_{2.5} and PM₁₀ includes PM_{2.5}, exceedance of those thresholds contributes to the basin nonattainment status.

Table 4.3-20. Combined Construction and Operation Emissions in the Mojave Desert Air Basin—Kern County General Plan Buildout Alternative (tons per year)

Analysis Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2017	—	—	—	—	—	—
2021	3.49	8.37	9.92	0.02	0.75	0.42
2025	26.61	19.39	53.35	0.07	7.30	3.83
2029	49.30	28.62	91.88	0.12	13.57	7.13
2033	72.21	38.28	132.88	0.16	19.98	10.47
2037	94.64	45.62	169.44	0.21	26.35	13.79
2041	114.14	50.05	197.25	0.23	32.34	17.06
Maximum Annual Emissions	114.14	50.05	197.25	0.23	32.34	17.06
EKAPCD Threshold	25 ¹	25 ¹	— ²	— ³	15 ¹	— ⁴

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter

¹ CEQA significance thresholds from Damo pers.comm. 2008. ROG and NO_x are precursors to ozone, and the Mojave Desert Air Basin is designated nonattainment for the 8-hr ozone standards; exceedance of those thresholds contributes to the basin nonattainment status. The Mojave Desert Air Basin is designated nonattainment for PM₁₀; exceedance of that threshold contributes to the basin nonattainment status.

² The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for CO.

³ The Mojave Desert Air Basin is designated as attainment (state) or unclassifiable (Federal) for SO₂.

⁴ The Mojave Desert Air Basin is designated as unclassified (state) or unclassifiable/attainment (Federal) for PM_{2.5}.

With respect to lead, sulfates, hydrogen sulfide, and vinyl chloride, buildout of the Kern County General Plan Buildout Alternative would generate a negligible amount, if any, of these pollutants. Such pollutant emissions are generally associated with industrial land uses that would require air district permits prior to construction; no such land uses are included in the Kern County General Plan Buildout Alternative. In addition, the ambient air concentrations for each of these pollutants throughout the study area are below their respective state and/or Federal ambient air quality standards. As such, potential effects associated with the generation of trace amounts, if any, of lead, sulfates, hydrogen sulfide, or vinyl chloride emissions would be minor. The Kern County General Plan Buildout Alternative would not result in substantial emissions of lead, sulfates, hydrogen sulfide, and vinyl chloride.

Existing Ranch Uses

The extent and nature of the Existing Ranch Uses under the Kern County General Plan Buildout Alternative would be similar to those under the No Action Alternative. Existing Ranch Uses would generate only incidental, insubstantial criteria pollutant emissions associated with residential, commercial, and agricultural land uses.

As described in Chapter 2, Proposed TU MSHCP and Alternatives, the limitations of the Ranchwide Agreement would not apply under this alternative. However, even in the absence of the Ranchwide Agreement, historic ranch practices as reflected in the Interim RWMP are anticipated to continue (although they cannot be assured), and compliance with legal requirements governing ground disturbing activities directly affecting air quality would apply. In addition, because most Existing Ranch Uses would have only minor effects on air quality, it is unlikely that Existing Ranch Uses under the Kern County General Plan Buildout Alternative would result in emissions that would exceed applicable air standards.

4.3.6.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Commercial and Residential Development Activities

Construction

Currently, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such receptors to be exposed to air pollutants during construction of Commercial and Residential Development under the Kern County General Plan Buildout Alternative. The exceptions would be near the existing El Tejon School playground, Tejon Fields, residences near the north end of Lebec Road, and, as construction progresses, new residents and workers associated with the proposed Commercial and Residential Development Activities would have potential to be exposed to air pollutants, namely diesel particulate emissions from onsite construction equipment.

As discussed in Section 4.3.3.3, Exposure of Sensitive Receptors to Substantial Pollutant Concentrations, a screening-level HRA was prepared to estimate the potential cancer risks associated with diesel particulate matter emissions resulting from offroad equipment that would be used during construction of Commercial and Residential Development Activities under the Proposed TU MSHCP Alternative. The level of construction activity on a given site would be comparable to the Kern County General Plan Buildout Alternative. For example, the construction activity associated with a typical 5-acre construction site would involve similar amounts of offroad equipment for a given activity (e.g., grading, building construction) regardless of the extent of the proposed

development. Therefore, the HRA conducted for the Proposed TU MSHCP Alternative would also apply to the Kern County General Plan Buildout Alternative.

As discussed under Section 4.3.3.3, Exposure of Sensitive Receptors to Substantial Pollutant Concentrations, the HRA found that the potential construction-related emissions effects would not exceed cancer risk thresholds. Additional details regarding the HRA are provided in Appendix GAs identified in Section 4.3.5.6, Mitigation Measures, development in the Covered Lands would also be subject to several Federal, state, and local air quality protection requirements. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation measures and BMPs to reduce air emissions. For example, Kern County's approval of the TMV Project requires limiting construction near schools to specific hours and days (Appendix J, MM 4.3-15) (Kern County 2009). Compliance with these requirements would further reduce development-related air quality effects to sensitive receptors. The risk of exposing sensitive receptors to substantial pollutant concentrations during construction of Commercial and Residential Development Activities would be minor.

Operations

Proposed Commercial and Residential Development Activities are not anticipated to include land uses that involve substantial operation sources of TACs (e.g., power plants, chrome plating shops). Rather, operation sources of TAC would be associated with CO from vehicle exhaust. The highest CO concentrations are generally found close to congested intersection locations. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (i.e., congested intersection) increases.

To analyze CO hotspots (measured by whether concentrations near an intersection or roadway could exceed the 1-hour or 8-hour CAAQS for CO), it is necessary to know the intersection locations, traffic levels, and adjacent land uses, information which is not known for the Kern County General Plan Buildout Alternative. Given the rural environment, low background CO concentrations, and decreasing CO emissions from motor vehicles over time, it is unlikely that a CO hotspot area could be created. Use of motor vehicles by residents and end users in development on the Covered Lands would be subject to several Federal and state vehicle and fuel standards, which are intended to reduce emissions of CO and other pollutants. In addition, traffic congestion would be limited through local requirements to avoid adverse conditions (i.e., achieve a good level of service). For example, Kern County's approval of the TMV Project requires the implementation of specific measures to address traffic congestion and limit residential development near I-5 (Appendix J). Compliance with these requirements would reduce development-related air quality effects on sensitive receptors. The risk of exposing sensitive receptors to substantial pollutant concentrations during operation of developed infrastructure under the Kern County General Plan Buildout Alternative would be minor.

Existing Ranch Uses

The extent and nature of the Existing Ranch Uses under the Kern County General Plan Buildout Alternative would be similar to those under the No Action Alternative. Under the No Action Alternative, Existing Ranch Uses would continue at existing levels and would not represent a substantial change over existing conditions. The continuation of Existing Ranch Uses, as described above, would not be expected to result in substantial emission concentrations near sensitive receptors. As discussed in Section 3.3, Air Quality, very minor emissions associated with limited construction and operation activities associated with existing land uses would continue.

In addition, because most Existing Ranch Uses would have only minor effects on air quality, the risk that Existing Ranch Uses under the Kern County General Plan Buildout Alternative would result in exposing sensitive receptors to substantial pollutant concentrations would be minor.

4.3.6.4 Objectionable Odors

Commercial and Residential Development Activities

Construction

Commercial and Residential Development Activities under the Kern County General Plan Buildout Alternative would be similar to those that would occur under the Proposed TU MSHCP Alternative except that there would be an additional 3,606 residential units and an additional 340,420 square feet of commercial development. As described above, few sensitive receptors are present in the immediate vicinity of the Covered Lands, limiting the potential for such users to be exposed to objectionable odors during construction. The exceptions would be near the existing El Tejon School playground, Tejon Fields, the residences near the north end of Lebec Road, and the residents and workers that move into the Covered Lands as development progresses. Potential sources that may emit odors during construction activities associated with Commercial and Residential Development Activities include the use of architectural coatings and solvents.

As noted previously, all Commercial and Residential Development Activities would be subject to several Federal, state, and local air quality protection requirements as indicated in Section 4.3.3.6, Mitigation Measures. As part of the project-level approval process, it is anticipated that the local jurisdiction would require the implementation of mitigation measures and BMPs to reduce air emissions. For example, compliance with SJVAPCD Rule 4601 and EKAPCD Rule 410.1 would be required, which would limit the amount of VOCs from architectural coatings and solvents. Therefore, the likelihood that construction activities or materials would expose sensitive receptors to substantial objectionable odors would be minor.

Operations

Commercial and Residential Development Activities under the Kern County General Plan Buildout Alternative would be similar to those that would occur under the Proposed TU MSHCP Alternative except that there would be an additional 3,606 residential units and an additional 340,420 square feet of commercial development. According to the SJVAPCD, land uses that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. While most of these uses would not be present in the Covered Lands under the Kern County General Plan Buildout Alternative, Commercial and Residential Development Activities may include wastewater treatment facilities, equestrian centers, commercial refuse receptacles, and restaurant uses, which could result in the creation of objectionable odors. Additional residential and commercial development that would occur under this alternative would result in a greater potential to create objectionable odors when compared to the other proposed action alternatives.

As mentioned previously, Commercial and Residential Development Activities would be subject to several Federal, state, and local air quality protection requirements. For example, Kern County's approval of the TMV Project requires that potential odor problems associated with equestrian or water reclamation facilities be addressed adequately by the project applicant (Kern County 2009, Mitigation Measures 4.3-16 and 4.3-17). Therefore, potential sources of objectionable odors would

be addressed and minimized, and the likelihood that operation of developed infrastructure under the Kern County General Plan Buildout Alternative would expose sensitive receptors to substantial objectionable odors would be minor.

Existing Ranch Uses

The extent and nature of the Existing Ranch Uses under the Kern County General Plan Buildout Alternative would be similar to those under the No Action Alternative. Existing Ranch Uses would continue at existing levels and would not represent a substantial change over existing conditions. As discussed in Section 3.3, Air Quality, very minor sources of objectionable odors, such as cattle grazing and other agricultural activities, would continue and would be spread-out and located far from the majority of sensitive receptors.

In addition, because most Existing Ranch Uses would have only minor effects on air quality, the risk that Existing Ranch Uses under the Kern County General Plan Buildout Alternative would result in the exposure of sensitive receptors to substantial odors would be minor.

4.3.6.5 Mitigation Measures

As described above, the limitations of the Ranchwide Agreement would not apply under the Kern County General Plan Buildout Alternative. However, even in the absence of the Ranchwide Agreement, BMPs and use restrictions (as currently set forth in the Interim RWMP) are anticipated to continue (although they cannot be assured). Restrictions imposed by the TMV Project Approvals and by easement language in the Existing Conservation Easement Areas would apply under the Kern County General Plan Buildout Alternative. Comparable measures to those provided in Tables 2-3 and 2-4 in Chapter 2, Proposed TU MSHCP and Alternatives, would likely be implemented to avoid, minimize and mitigate effects on special-status species (i.e., state or federally-listed species, species protected as 'special-status' under CEQA) either as part of the CESA or CEQA processes or through a project-specific consultation with the Service completed in accordance with either ESA Section 10 or Section 7. These measures (e.g., dust suppression) could also help to reduce effects on air quality. In addition, the mitigation measure listed in Section 4.3.3.6, Mitigation Measures, for the Proposed TU MSHCP Alternative would also be implemented under the Kern County General Plan Buildout Alternative.

4.3.7 Cumulative Air Quality Effects

As indicated in Section 4.0.4, Methods for Assessing Cumulative Effects, the cumulative effects analysis area for air quality differs from the regional cumulative analysis area described in Section 4.0. As with direct and indirect effects described above, the cumulative effects analysis area for air quality has been expanded to include the area encompassed by those air basins that could be affected by the proposed action, including the SJVAB, the MDAB, and the SCAB. The thresholds set forth by the local air pollution control districts governing air quality in these basins are inherently cumulative because they establish a threshold above which emissions would contribute to that air basin's nonattainment status. As indicated in Section 4.3.1.1, Methods, cumulative effects on air quality may result from activities that would cause the local air basin to exceed established emissions thresholds; expose sensitive receptors to unacceptable levels of risk from TACs or to CO hotspots; or expose people to an unmitigable objectionable odor.

Cumulative effects on air quality are considered to be indirect effects of the proposed action, in that they are related to future development that may be facilitated by issuance of an incidental take

permit (ITP) by the Service. Whether or not such effects are substantial cumulatively is primarily dependent on the mitigation measures put in place by other Federal, state, and local authorities pursuant to their project-specific approval process.

As noted above, exceedance of the thresholds established by local air pollution control districts inherently results in a cumulatively substantial effect on air quality.

4.3.7.1 Construction Emissions

The No Action Alternatives would not include any Commercial and Residential Development Activities and would not result in any construction emissions associated with these activities that could contribute to a cumulative effect. Existing Ranch Uses or Plan-Wide Activities associated with any alternatives would not involve substantial construction emissions and would continue in compliance with applicable air quality thresholds. Therefore, these activities would not combine with any of the reasonably foreseeable projects discussed in Section 4.0.4, Methods for Assessing Cumulative Effects, to result in substantial cumulative air quality effects from construction.

Construction emissions from Commercial and Residential Development Activities proposed under all the action alternatives would result in cumulative effects. All the action alternatives are anticipated to exceed thresholds for ROG and NO_x, and the Kern County General Plan would also exceed thresholds for PM₁₀ (and by implication could also result in a cumulatively substantial contribution of PM_{2.5} emissions).

In addition to applicable BMPs and use restrictions required by the Ranchwide Agreement and any ESA-related conservation measures (e.g., dust control measures), all development would be required to comply with applicable Federal, state and local air quality requirements, as discussed above. Each development project, when proposed, would include project-specific reduction requirements that are likely to reduce the emissions substantially. For example, Kern County's approval of the TMV Project requires, among other things, that emissions not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation); a dust control plan be submitted and approved by the SJVAPCD, including specific dust control BMPs; compliance with all other requirements of the SJVAPCD Fugitive Dust Rules, use of alternative fuel technologies for construction vehicles; and selection of sustainable construction materials (Appendix J, MMs 4.3-1 through 4.3-5) (Kern County 2009). However, because it cannot be assured that all air emissions would be reduced below the local air districts' thresholds, the Service considers operations from all the action alternatives, when combined with other reasonably foreseeable projects, to result in a substantial cumulative effect on air quality.

4.3.7.2 Operation Emissions

As mentioned previously, the No Action Alternatives would not result in any commercial and residential development and would not result in any cumulative effects from these activities. Existing Ranch Uses or Plan-Wide Activities associated with any alternatives would not involve substantial operation emissions and would continue in compliance with applicable air quality thresholds. Therefore, these activities would not combine with any of the reasonably foreseeable projects discussed in Section 4.0.4, Methods for Assessing Cumulative Effects, to result in a substantial cumulative air quality effects from operation.

Operation emissions associated with Commercial and Residential Development Activities under all action alternatives would have the potential to exceed applicable air quality thresholds. The total

operation emissions for the SJVAB and SCAB combined under the Proposed TU MSHCP, Condor Only HCP, and CCH Avoidance MSHCP Alternatives would exceed the SJVAPCD and SCAQMD standards for ROG, NO_x, and PM₁₀ and the SCAQMD thresholds for CO, SO_x, and PM_{2.5}.⁶ Under the Kern County General Plan Buildout Alternative, total operation emissions for the SJVAB, MDAB, and SCAB combined would exceed SJVAPCD, EKAPCD, and SCAQMD thresholds would be exceeded for ROG, NO_x, and PM₁₀ and the SCAQMD thresholds would be exceeded for CO and PM₁₀.

As mentioned in the analysis of effects, due to the nature of development under proposed action alternatives, there would be a period when portions of the planned development would be built and occupied, but construction would continue. Unlike many development projects where construction and operations represent two distinct phases, under this development scenario, the two phases would overlap. It is therefore important to consider emissions that could occur during these overlaps. For the total combined construction and operation emissions within the SJVAB, all proposed action alternatives would result in exceedance of SJVAPCD thresholds for ROG, NO_x, and PM₁₀. Additionally, the Kern County General Plan Alternative would also result in exceedance of EKAPCD thresholds for ROG, NO_x, and PM₁₀.

In addition to applicable BMPs and use restrictions required by the Ranchwide Agreement (e.g., working with the SJVAPCD to minimize air quality effects from farming operations), through the local approval process, additional mitigation would be implemented in compliance with Federal, state, and local air quality regulations. Each development project, when proposed, would include project-specific reduction requirements that would be likely to reduce air emissions substantially. For example, Kern County's approval of the TMV Project requires that emissions not exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀ (total project construction and operation), and requires implementation of specific measures to reduce operation emissions, such as incorporating measures into the design to ensure energy efficiency beyond the 2008 Title 24 Standards; providing transit connection on site; providing alternative transportation infrastructure; requiring best available alternative fuel technology for community service vehicles; requiring builders, developers, and custom lot owners to include high-speed communication technology to encourage telecommuting and working from home; and implementing specific measures to encourage ride-sharing and use of alternative fuel vehicles (Kern County 2009). However, because it cannot be assured that all air emissions would be reduced below the local air districts' thresholds, the Service considers operation emissions from all the proposed action alternatives, when combined with other reasonably foreseeable projects, to result in a substantial cumulative effect.

4.3.7.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Cumulative effects on sensitive receptors from exposure to TACs are analyzed in terms of the potential exposure of sensitive receptors—as a result of either construction or operations—to TACs from multiple sources at levels that pose unacceptable health risks. Cumulative effects on sensitive receptors from exposure to concentrations of CO are analyzed in terms of any likely potential

⁶ As noted, above, if development under the Proposed TU MSHCP, Condor Only HCP, or CCH Avoidance MSHCP Alternatives were to occur within the Oso Canyon area, and all trips associated with the Centennial Project described above were occur within the MDAB, the combined stationary and mobile emissions within the MDAB would individually exceed the EKAPCD's or the AVAQMD's thresholds for NO_x and PM₁₀. However for the reasons described in Section 4.3.2.2 above, this scenario is considered unlikely. Stationary emissions under these alternatives are considered in the context of the SJVAB and SJVAPCD thresholds and mobile sources are considered in the context of the SCAB and SCAQMD thresholds.

exposure of sensitive receptors to a CO hotspot. Because no development would occur under the No Action Alternative, and because the Existing Ranch Uses would not involve substantial TAC emission sources and are not likely to result in a CO hotspot, the No Action Alternative would not result in cumulative effects on air quality.

With respect to the proposed action alternatives, no existing or reasonably foreseeable sources of TACs are present in the vicinity of the Covered Lands (separate from the sources analyzed under each alternative) that would combine to create cumulative effects. Similarly, none of the proposed commercial and residential development associated with the alternatives would be anticipated to involve substantial operation sources of TACs (e.g., power plants, chrome plating shops), nor would any of the other reasonably foreseeable projects considered in this analysis. Therefore, it is unlikely that the effect of any of the alternatives, combined with other reasonably foreseeable projects, would result in a substantial cumulative contribution to pollutant concentrations, especially given the localized nature of TAC effects.

With respect to CO hotspots, it is not possible to conduct CO hotspots analyses for other development projects without knowing intersection locations and their traffic volumes. However, given the distance of the Covered Lands from the other projects described in Section 4.0.4, Methods for Assessing Cumulative Effects, low background CO concentrations, and decreasing CO emissions from motor vehicles over time, it is unlikely that cumulative CO hotspots would be experienced. Thus, effects on sensitive receptors from the Proposed TU MSHCP Alternative, Condor Only HCP Alternative, CCH Avoidance MSHCP Alternative, and Kern County General Plan Buildout Alternative are not considered cumulatively substantial.

4.3.7.4 Objectionable Odors

Although the No Action Alternative would include some existing land uses that could produce objectionable odors (e.g., ongoing ranch uses) the No Action Alternative would not result in an increase in objectionable odors. Furthermore, none of the reasonably foreseeable projects planned in the vicinity of the Covered Lands are expected to result in substantial odor problems. Therefore, the No Action Alternative would not result in a cumulative effect associated with objectionable odors.

As discussed above the proposed action alternatives would result in minor increases in objectionable odors. Future development associated with the other reasonably foreseeable projects could also result in increased odor problems. However, because potential land uses resulting in odors would be spread out and geographically separated by topography, none of the proposed action alternatives is anticipated to result in a substantial contribution to cumulative effects associated with objectionable odors.

4.3.8 Comparison of Alternatives

4.3.8.1 Construction Emissions

Table 4.3-21 summarizes the maximum annual construction emissions of criteria air pollutants in any year for development under each alternative and includes reductions as required by application of various rules and requirements, including the SJVAPCD's Rule 9510 (Indirect Source Review).

The No Action Alternative would not involve any Commercial and Residential Development. Existing Ranch Uses or Plan-Wide Activities associated with any alternatives would not involve substantial construction emissions or have the potential to exceed applicable air quality thresholds.

The Proposed TU MSHCP, Condor Only HCP, and CCH Avoidance MSHCP Alternative would all generate approximately the same amount of criteria pollutants from construction associated with Commercial and Residential Development Activities, as shown in Table 4.3-21. As indicated in the discussion in Section 4.3.5.1, the CCH Avoidance MSHCP Alternative would have a slightly smaller Disturbance Area in comparison to the Proposed TU MSHCP and Condor Only HCP Alternatives, but would require additional cut and fill during grading. Overall, the construction emissions for the CCH Avoidance MSHCP Alternative would be similar to those for the Proposed TU MSHCP and Condor Only HCP Alternatives. Construction under the Kern County General Plan Buildout Alternative would generate the greatest amount of construction-related emissions, which would include an additional 7.54 tons ROG per year (54%), 16.02 tons NO_x per year (59%), 28.89 tons CO per year (55%), 0.07 tons SO_x per year (54%), 1.66 tons PM₁₀ per year (48%), and 0.86 tons PM_{2.5} per year (59%) compared to the other alternatives.

As noted in the discussions above, implementation of BMPs and mitigation measures to reduce the effects of the alternatives on air quality would further reduce emissions. However, even with implementation of these measures, emissions would still be expected to exceed applicable thresholds.

Table 4.3-21. Comparison of Total Construction Emissions (Criteria Pollutants) (maximum tons per year)

Alternative	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
No Action Alternative	—	—	—	—	—	—
Proposed TU MSHCP Alternative	14.00	27.00	52.55	0.13	3.49	1.45
Condor Only HCP Alternative	14.00	27.00	52.55	0.13	3.49	1.45
CCH Avoidance MSHCP Alternative	14.00	27.00	52.55	0.13	3.49	1.45
Kern County General Plan Buildout Alternative	21.54	43.02	81.44	0.20	5.15	2.31

4.3.8.2 Operations Emissions

Table 4.3-22 summarizes the annual operation emissions of criteria air pollutants at full buildout of Commercial and Residential Development under each alternative. For each proposed action alternative, the maximum annual emissions would occur at full buildout in 2041. This summary includes reductions as required by application of various rules and requirements, including SJVAPCD Rule 9510.

The No Action Alternative would not include commercial and residential development. Existing Ranch Uses or Plan-Wide Activities associated with any alternatives would not involve substantial operation emissions or have the potential to exceed applicable air quality thresholds.

The Proposed TU MSHCP, Condor Only HCP, and CCH Avoidance MSHCP Alternative would all generate approximately the same amount of operation-related criteria pollutants from Commercial and Residential Development Activities, as shown in Table 4.3-22. The CCH Avoidance MSHCP

Alternative would generate slightly less emissions by comparison because a slightly smaller area would be developed. Operation under the Kern County General Plan Buildout Alternative would generate the highest emissions, which would include an additional 331.93 tons ROG per year (181%), 326.15 tons NO_x per year (53%), 889.14 tons CO per year (76%), 2.87 tons SO_x per year (53%), 232.25 tons PM₁₀ per year (59%), and 57.83 tons PM_{2.5} per year (159%) compared to the Proposed TU MSHCP and Condor-Only HCP Alternatives.

As noted in the discussions above, implementation of BMPs and mitigation measures to reduce the effects of the alternatives on air quality would further reduce emissions. However, even with implementation of these measures, emissions would still be expected to exceed applicable thresholds.

Table 4.3-22. Comparison of Total Operation Emissions (Criteria Pollutants) (maximum tons per year)

Alternative	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
No Action Alternative	—	—	—	—	—	—
Proposed TU MSHCP Alternative	183.88	620.63	1,173.65	5.37	396.54	36.33
Condor Only HCP Alternative	183.88	620.63	1,173.65	5.37	396.54	36.33
CCH Avoidance MSHCP Alternative	171.63	585.21	1,105.03	5.07	374.04	34.23
Kern County General Plan Buildout Alternative	515.81	946.78	2,062.79	8.24	628.79	94.16

Whereas the combined construction and operation emissions in key years were presented in the assessment of each alternative, the maximum annual emissions would occur at full buildout in 2041 after completion of construction. Thus, none of the prior years is anticipated to result in higher combined emissions than those that would occur in 2041, and the emissions in 2041 represent the maximum annual emissions for the purpose of comparing the alternatives.

4.3.8.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

None of the alternatives is expected to result in the exposure of sensitive receptors to substantial pollutant concentrations. Although all the alternatives result in varying degrees of activities that could result in minor emissions of criteria pollutants, none of the land uses would involve the use of or exposure to substantial TACs and given the rural environment, low background CO concentrations, and decreasing CO emissions from motor vehicles over time, it is unlikely that a CO hotspot area could be created.

4.3.8.4 Objectionable Odors

Some existing and proposed land uses under all the action alternatives associated with Commercial and Residential Development Activities and Existing Ranch Uses and Plan-Wide Activities have the potential to result in the creation of objectionable odors. Project approvals granted by Federal and state agencies or local jurisdictions would minimize these effects. Furthermore, most of these land uses would be located far from sensitive receptors. The proposed action alternatives would all result in a slightly greater potential for odor effects compared to the No Action Alternative because of the

proposal to include Commercial and Residential Development Activities. Of these alternatives, the Kern County General Plan Buildout Alternative would result in the greatest potential to create additional sources of objectionable odor because proposed development under this alternative would be greatest.