

## 4.1 AIR QUALITY

This section evaluates the impacts of the proposed Amendment related to air quality. See Appendix B, *Air Quality Technical Report*, for more details on the air quality technical analysis. For this analysis, the same air quality methodology used in the approved Plan PEIR was implemented with the model corrections described in Chapter 2, *Project Description*.

### 4.1.1 EXISTING CONDITIONS

The existing conditions included in Section 4.3, *Air Quality*, of the approved Plan PEIR are used for this evaluation and have not materially changed since the preparation of the approved Plan PEIR.

### 4.1.2 REGULATORY SETTING

The regulatory setting in Section 4.3 of the approved Plan PEIR included relevant federal, State, regional, and local regulations. The regulatory setting included in Section 4.3 of the approved Plan PEIR used for this evaluation has not materially changed since the preparation of the approved Plan PEIR, except for the following updates.

## FEDERAL LAWS, REGULATIONS, PLANS, AND POLICIES

### Corporate Average Fuel Economy Standards

The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (EPA) set the Corporate Average Fuel Economy Standards (CAFE) to improve the average fuel economy and reduce GHG emissions generated by cars and light duty trucks. NHTSA and EPA had adopted a rule in 2019 for the current fuel efficiency standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient [SAFE] Vehicles Rule). NHTSA and EPA had also issued a regulation revoking California's Clean Air Act waiver, which allows California to set its own emissions standards, asserting that the waiver was preempted by federal law (SAFE Rule Part One, 84 *Federal Register* 51310, September 27, 2019).

On December 21, 2021, the NHTSA finalized its repeal of the SAFE Vehicles Rule Part One. NHTSA's 2021 rule thus reopens pathways for State and local fuel economy laws (NHTSA 2021).

SAFE Rule Part Two was finalized on March 31, 2020, and went into effect on June 29, 2020. Part Two of the SAFE Rule sets the CAFE standards to increase in stringency by 1.5 percent per year above model year 2020 levels for model years 2021–2026. These standards are lower than the previous CAFE standards, which required that model years 2021–2026 increase in stringency by 5 percent per year.

## STATE LAWS, REGULATIONS, PLANS, AND POLICIES

### 2022 Climate Change Scoping Plan

Pursuant to Assembly Bill (AB) 1279 (see Section 4.3, *Greenhouse Gas Emissions*, of this SEIR for description), the California Air Resources Board (CARB) updated the 2017 Scoping Plan to address implementation of GHG reduction strategies to meet the 2045 reduction target. The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) was approved in December 2022. The Scoping Plan Scenario achieves the AB 1279 target

of 85 percent below 1990 levels by 2045 and identifies a need to accelerate the 2030 target to 48 percent below 1990 levels. The plan builds upon GHG reduction measures of the previous Scoping Plans and includes additional measures to capture and store atmospheric carbon through the State's natural and working lands and using a variety of mechanical approaches. By incorporating GHG emission reduction and carbon capture methods, the 2022 Scoping Plan identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 (CARB 2022). Appendix D of the Scoping Plan includes recommendations for local government actions to help the State meet AB 1279's GHG reduction targets.

### ***Regional Air Quality Strategy and State Implementation Plan***

CARB and the San Diego Air Pollution Control District (SDAPCD) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the San Diego Air Basin (SDAB). Consistent with the approved Plan PEIR, the most relevant air quality plan is the 2020 State Implementation Plan (SIP), which addresses federal ozone (O<sub>3</sub>) nonattainment and represents the San Diego region's portion of the SIP. In addition, the *San Diego Regional Air Quality Strategy* (RAQS) is SDAPCD's most recent plan for attaining and maintaining State standards. The RAQS was initially adopted in 1991 and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, 2009, 2016, and (most recently) 2022 (SDAPCD 2022).

Both the RAQS and SIP demonstrate the effectiveness of CARB measures (mainly for mobile sources) and SDAPCD's plans and control measures (mainly for stationary and area-wide sources) for attaining the O<sub>3</sub> National Ambient Air Quality Standards (NAAQS). The SIP is also updated on a triennial basis. For the 8-hour O<sub>3</sub> standard, the 2016 SIP outlines SDAPCD's portion of the SIP, and also outlines plans and control measures designed to attain and maintain the 8-hour O<sub>3</sub> NAAQS (2008 standard). The 2020 SIP outlines plans and control measures designed to attain and maintain the 8-hour O<sub>3</sub> NAAQS (2008 and 2015 standard). On July 12, 2021, the 2020 SIP was found complete by EPA by operation of law 6 months after the submittal date. Under the Clean Air Act, EPA has 12 months from the completeness date to take a final action on the 2020 SIP.

Chapter 5 of the RAQS includes three categories of emission control programs to reduce nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) emissions from mobile sources: Incentive Programs, Indirect Source Programs, District Mobile Source Compliance Programs, and Transportation Control Measures (TCMs).

Incentive programs found in the RAQS augment traditional control programs to further encourage technology development and provide cost-effective emission reductions in advance of regulatory requirements. The following Incentive Programs provide funding to reduce emissions of ozone precursors:

- Carl Moyer Memorial Air Quality Attainment Program;
- Community Air Protection Program (CAPP);
- Funding Agricultural Replacement Measures for Emission Reductions (FARMER);
- Voluntary NO<sub>x</sub> Remediation Measure Program (NRM);
- Voucher Incentive Program (VIP);
- Proposition 1B Goods Movement Emission Reduction Program (GMERP);
- Vehicle Registration Fund Program (VRF);
- Air Quality Power Generation Mitigation Fund;
- School Bus Compressed Natural Gas (CNG) Tank Replacement Incentive Program (TRIP);

- Drayage Truck Demonstration Project;
- Scrap Car Reimbursement Assistance Program (SCRAP)(“T-3.3”);
- CALeVIP (“T-3.5”);
- Portside Air Quality Improvement and Relief (PAIR) Program;
- Clean Cars 4 All;
- Lawn and Garden Equipment Exchange Programs; and
- Short-Haul Zero Emission Truck Pilot Project.

SDAPCD’s Indirect Source Program described in the RAQS consists of ongoing outreach and assistance to local governments, land developers, citizen groups, and non-profit organizations to reduce vehicle trips and associated emissions through voluntary land use and street design improvements (i.e., “smart growth”). SDAPCD efforts include ongoing technical assistance to SANDAG on programs to encourage smart growth; technical assistance to both the City and County of San Diego in crafting their Climate Action Plans (CAPs), to reflect greater reliance on transit and non-motorized transportation modes; workshops, presentations, and technical assistance for city planning staffs, traffic engineers, developers, merchant organizations, neighborhood groups, and others working to improve alternative forms of transportation (walking, bicycling, transit); and smart growth and alternative transportation modes fact sheets.

#### 4.1.3 SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines provides criteria for determining the significance of a project’s environmental impacts in the form of Initial Study checklist questions. Unless otherwise noted, the significance criteria specifically developed for the approved Plan PEIR and used in this SEIR are based on the Appendix G checklist questions. In some cases, SANDAG has combined checklist questions, edited their wording, or changed their location in the document in an effort to develop significance criteria that reflect the programmatic level of analysis in the approved Plan PEIR and this SEIR, and the unique characteristics of the approved Plan and proposed Amendment.

For purposes of this SEIR, implementation of the proposed Amendment would have a significant air quality impact if it would:

- |             |  |
|-------------|--|
| <b>AQ-1</b> | Conflict with or obstruct implementation of the Regional Air Quality Strategy and/or State Implementation Plan   |
| <b>AQ-2</b> | Result in a cumulatively considerable net increase in nonattainment or attainment criteria pollutants, including VOC, NO <sub>x</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , and SO <sub>x</sub> |
| <b>AQ-4</b> | Expose sensitive receptors to substantial PM <sub>10</sub> and PM <sub>2.5</sub> concentrations  |
| <b>AQ-5</b> | Expose sensitive receptors to substantial TAC concentrations   |
| <b>AQ-6</b> | Expose sensitive receptors to carbon monoxide hot spots  |

The approved Plan PEIR included two additional significance thresholds for air quality (AQ-3 and AQ-7). However, as discussed in Chapter 1, *Introduction*, of this SEIR, it was determined that project modifications associated with the proposed Amendment would not alter the impact conclusions described in the approved Plan PEIR for these thresholds. Therefore, they are not analyzed in this SEIR.

- |             |  |
|-------------|--|
| <b>AQ-3</b> | Result in construction-related emissions above regional mass emission thresholds |
|-------------|--|

**AQ-7** Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

#### **4.1.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

**AQ-1 CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE REGIONAL AIR QUALITY STRATEGY AND/OR STATE IMPLEMENTATION PLAN**

##### **ANALYSIS METHODOLOGY**

The applicable air quality attainment plans include the 2020 SIP and the 2022 RAQS. While the SDAB is designated as a nonattainment area for the State PM10 and PM2.5 standards (particulate matter smaller than 10 and 2.5 microns, respectively), the California Clean Air Act (CCAA) does not require preparation of attainment plans for these pollutants, and no such plans have been prepared.

##### **Regional Growth and Land Use Change**

The analysis evaluates whether forecasted regional growth and land use change under the proposed Amendment would conflict with or obstruct implementation of programs and rules and regulations adopted as part of the RAQS and SIP.

##### **Transportation Network Improvements and Programs**

The SANDAG transportation conformity analysis provided in Attachment B to the proposed Amendment is used to determine whether implementation of planned transportation network improvements and programs would conflict with or obstruct implementation of the 2020 SIP. Modeled motor vehicle emissions resulting from implementation of the proposed Amendment are compared to the emissions budgets established in the SIP. In this case, the conformity analysis was conducted for the 2020 SIP, which was adopted by EPA in 2021.

##### **IMPACT ANALYSIS**

##### **2025, 2035, and 2050**

##### ***Regional Growth and Land Use Change***

The proposed Amendment would not change land use or anticipated growth within the region or introduce new transportation network or facility improvements from what was analyzed in the approved Plan PEIR. Therefore, as with the approved Plan, the proposed Amendment would not conflict with or obstruct implementation of the applicable air quality plans in 2025, 2035, or 2050. This impact is less than significant.

##### ***Transportation Network Improvements and Programs***

Modeled emissions from the transportation conformity analysis are summarized in Table 4.1-1. As shown, ozone precursors reactive organic gases (ROG) and NO<sub>x</sub> in 2025, 2035, and 2050 are less than the conformity budget emissions for both ROG and NO<sub>x</sub> in the 2020 SIP. In addition, the proposed Amendment change from the approved Plan is minimal. Thus, implementation of the proposed Amendment would not generate emissions greater than anticipated by relevant federal and State air quality attainment plans. This impact is less than significant.

**Table 4.1-1**  
**Air Quality Conformity Emissions (tons per day)**

SIP Year	Year	ROG			NO <sub>x</sub>		
		SIP Budget	Proposed Amendment	Change from Approved Plan	SIP Budget	Proposed Amendment	Change from Approved Plan
2020 SIP	2023	13.6	13.4	-0.1	19.3	17.3	0.1
	2025	<i>12.6</i>	<i>12.2</i>	<i>0.1</i>	<i>18.0</i>	<i>15.8</i>	<i>0.3</i>
	2026	12.1	11.6	0.2	17.3	15.0	0.3
	2029	11.0	10.3	0.1	15.9	13.5	0.1
	2032	10.0	9.2	-0.1	15.1	12.6	0.0
	2035	<i>10.0</i>	<i>8.5</i>	<i>-0.1</i>	<i>15.1</i>	<i>12.2</i>	<i>-0.1</i>
	2040	10.0	7.3	-0.1	15.1	11.6	-0.1
	2050	10.0	6.7	-0.1	15.1	11.9	-0.1

Source: SANDAG 2023

Note: Conformity years for the 2020 SIP (2023, 2026, 2029, 2032, 2040, 2050) do not align perfectly with the analysis years for the proposed Amendment. SIP budgets and emission estimates for the missing years (2025 and 2035) were estimated based on linearly interpolating between the previous and next conformity year. Interpolated numbers are shown in *italics*.

### **2025, 2035, and 2050 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a less-than-significant impact related to conflicts with or obstruction of implementation of the applicable air quality plans because regional growth and land use change would be consistent with the SIP growth forecasts, and applicable rules, regulations, and programs adopted as part of the plans by the SDAPCD and CARB in 2025, 2035 and 2050. Additionally, the approved Plan PEIR found that the transportation network improvements and programs are consistent with the TCMs contained within the SIP and the RAQS. The proposed Amendment would be consistent with the applicable air quality plans because the emissions are less than the conformity emissions budget for ROG and NO<sub>x</sub>. Therefore, the conclusion for the proposed Amendment in 2025, 2035, and 2050 would be unchanged from what was identified in the approved Plan PEIR and would remain less than significant.

### **Exacerbation of Climate Change Effects**

Although there will be climate change impacts in the San Diego region that could conflict with or obstruct implementation of the regional air quality plans as described in Section 4.3.1 of the approved Plan PEIR, the proposed Amendment would not exacerbate climate change effects on the air quality plans if it remains in compliance with existing and evolving regulatory requirements, assuming these requirements incorporate consideration of future climate change.

**AQ-2                    RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE IN NONATTAINMENT OR ATTAINMENT CRITERIA POLLUTANTS, INCLUDING VOC, NO<sub>x</sub>, CO, PM10, PM2.5, AND SO<sub>x</sub>**

### **ANALYSIS METHODOLOGY**

As with the approved Plan PEIR, this analysis focuses on the criteria pollutants for which the region is classified as nonattainment: O<sub>3</sub> (NAAQS and California Ambient Air Quality Standards [CAAQS]) and PM<sub>2.5</sub> and PM<sub>10</sub> (CAAQS). Emissions are also projected for criteria pollutants for which the region is in attainment: carbon monoxide (CO) and sulfur oxides (SO<sub>x</sub>).

Future operational emissions of ozone precursors (VOC and NO<sub>x</sub>), PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and SO<sub>x</sub> associated with implementation of the proposed Amendment are identified. Future emissions under the proposed Amendment are then compared to 2016 levels. Pollutant emissions that show no change or decrease under the proposed Amendment would not contribute to a cumulative increase in emissions and therefore are not addressed further in the analysis. Where operational pollutant emissions increase under the proposed Amendment, the analysis considers whether the increase is cumulatively considerable. Any incremental increase associated with the proposed Amendment is considered cumulatively considerable. Cumulative emissions from all sources in the region are reported from the CARB emissions inventory for 2016, 2025, and 2035. 2050 emissions are extrapolated from 2035 from the CARB emissions inventory, as explained in Appendix B of this SEIR. As discussed above in Section 4.1.3, *Significance Criteria*, construction emissions (Impact AQ-3) were not addressed in this SEIR.

On-road emissions were estimated based on emission factors from CARB's EMFAC2017 model based on the average fleet mix operating in San Diego County for each analysis year, fugitive road dust PM<sub>10</sub> and PM<sub>2.5</sub> emission factors using CARB methodology, and activity data from SANDAG's activity-based model for each analysis year. Freight rail emissions were estimated based on CARB's freight emissions model in EMFAC for each analysis year. Passenger rail emissions were estimated based on rail activity for existing (e.g., Amtrak, Sprinter, and Coaster) and proposed new rail lines as well as locomotive fleet turnover for each analysis year, as provided by SANDAG staff, along with EPA emission factors for locomotives.

Note that the on-road emission estimates differ from the emissions estimates for the transportation conformity (Table 4.1-1) due to methodological differences. The primary difference here is that on-road emissions estimates are estimated by roadway link using the actual speeds provided in the SANDAG activity-based model. The vehicle miles traveled (VMT) and emission factor model are the same, so differences in emissions are due primarily to speed differences. The methodology employed is discussed further in Appendix B of this SEIR. This more detailed methodology was used here to support the detailed hot spot and human health risk assessment.

## Health Impacts

Consistent with the discussion in Section 4.3.1 of the approved Plan PEIR, all criteria pollutants that would be generated by the proposed Amendment are associated with some form of health risk (e.g., asthma, lower respiratory problems). Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a regional criteria pollutant, whereas CO, nitrogen dioxide (NO<sub>2</sub>), SO<sub>x</sub>, and lead (Pb) are localized pollutants. Particulate matter (PM) can be both a local and a regional pollutant, depending on its composition.

### ***Regional Project-Generated Criteria Pollutants (Ozone Precursors, Regional SO<sub>x</sub>, and Regional PM)***

Adverse health effects induced by regional criteria pollutant emissions generated by the proposed Amendment (ozone precursors, SO<sub>x</sub> and PM) are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individuals [e.g., age, gender]). For these reasons, ozone precursors (ROG and NO<sub>x</sub>) contribute to the

formation of ground-borne ozone on a regional scale. Emissions of ROG and NO<sub>x</sub> generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate and SO<sub>x</sub> pollution may be transported over long distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased ozone, SO<sub>x</sub>, or regional PM concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project. Moreover, exposure to regional air pollution does not guarantee that an individual will experience an adverse health effect—as discussed in Section 4.3.1 of the approved Plan PEIR, there are large individual differences in the intensity of symptomatic responses to air pollutants. However, other variables, including the overall health of individuals and other underlying medical conditions, which cannot be known, strongly influence individual health consequences.

Nonetheless, emissions increases by the proposed Amendment, were they to occur, would increase photochemical reactions and the formation of tropospheric ozone, SO<sub>x</sub>, and secondary PM, which, at certain concentrations, would lead to increased incidence of specific health consequences, such as various respiratory and cardiovascular ailments, which for the reasons stated above cannot meaningfully be quantified. As discussed previously, air districts develop region-specific CEQA thresholds of significance in consideration of existing air quality concentrations and attainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates there are known safe concentrations of criteria pollutants. Thus, NAAQS and CAAQS are health-based standards.

#### ***Localized Project-Generated Criteria Pollutants and Air Toxics (Localized PM, CO, NO<sub>2</sub>, SO<sub>x</sub>, and Pb)***

Localized pollutants generated by a project are deposited and potentially affect populations near the emissions source. Because these pollutants dissipate with distance, emissions from individual projects can result in direct health impacts on adjacent sensitive receptors. Localized pollutants analyzed in this SEIR include localized PM and toxic air contaminants (TACs).

The localized PM analysis is provided in Impact AQ-4. In AQ-4, if the proposed Amendment would contribute to an existing violation or create a new violation, it would also contribute to these adverse health effects. Health impacts of TACs are analyzed separately in Impact AQ-5. Pb was removed from motor vehicle fuels eliminating the activities here as sources of Pb emissions. NO<sub>x</sub> are highly reactive gases with regional, not local impact, and are thus not analyzed here. SO<sub>x</sub> are present in small amounts in motor vehicle emissions, but most impacts are from stationary power and industrial facilities and large non-road sources. As these are not the focus of this analysis local sulfur dioxide (SO<sub>2</sub>) impacts were not analyzed.

## **IMPACT ANALYSIS**

### **2025**

#### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

As shown in Table 4.1-2, emissions would decrease from 2016 to 2025 under implementation of the proposed Amendment for all emissions as follows:

- ROG reduced by 4.1 tons per day, or 63 percent
- NO<sub>x</sub> reduced by 23.2 tons per day, or 65 percent
- CO reduced by 75.8 tons per day, or 53 percent

- PM10 reduced by 0.4 ton per day, or 3 percent
- PM2.5 reduced by 0.5 ton per day, or 13 percent
- SO<sub>x</sub> reduced by 0.04 ton per day, or 10 percent

Note that in terms of activity, VMT, freight rail, and passenger rail activity is projected to increase between 2016 and 2025. Reductions in emissions across the board are due primarily to federal and State regulations that reduce emissions from vehicles and locomotives over time. Moreover, while passenger rail activity increases, the rail lines, such as Coaster and Amtrak, are replacing existing older locomotives with modern, Tier 4 engines by 2025. Thus, while activity and fuel consumption increase, emissions are reduced, because Tier 4 engines emit fewer emissions per gallon of fuel consumed than the current locomotive fleet.

For on-road sources, the average vehicle fleet in 2025 is assumed to be substantially cleaner than the existing fleet. Therefore, while total VMT would increase 1.1 percent, emissions of all pollutants decrease, because newer vehicles emit less emissions on a per mile basis. It is worth noting that the decrease in PM10 and PM2.5 is less than other pollutants because PM10 and PM2.5 emissions from on-road sources are dominated (comprising 95 percent of PM10 and 83 percent of PM2.5) by paved road dust as well as brake and tire wear in 2025, and emission rates for paved road dust as well as brake and tire wear do not follow the same downward trend as vehicle exhaust. Therefore, PM10 and PM2.5 emissions trend down by 2025, but only slightly.

As shown, when compared to the 2016 baseline conditions, emissions from the proposed Amendment are reduced for each criteria pollutant, including nonattainment pollutants. There would be no adverse health effects associated with these emissions decreases.

**Table 4.1-2  
Proposed Amendment Emission Estimates Prior to Mitigation**

Emission Category	Emissions (tons per day)					
	ROG	NO <sub>x</sub>	CO	PM10	PM2.5	SO <sub>x</sub>
<b>2016</b>						
On-Road Sources	6.4	33.5	141.9	13.5	3.6	0.4
Freight Rail	0.0	0.8	0.2	0.0	0.0	0.0
Passenger Rail	0.1	1.4	0.0	0.1	0.0	0.0
Total 2016	6.5	35.7	142.1	13.6	3.7	0.4
Change from Approved Plan <sup>1</sup>	0.0	0.4	-3.2	0.0	0.0	0.0
<b>2025</b>						
On-Road Sources	2.4	11.7	66.1	13.2	3.2	0.3
Freight Rail	0.0	0.5	0.2	0.0	0.0	0.0
Passenger Rail	0.0	0.3	0.0	0.0	0.0	0.1
Total 2025	2.4	12.5	66.3	13.2	3.2	0.3
Change from Approved Plan	0.0	0.5	-1.1	0.1	0.0	0.0
Net Change From 2016	-4.1	-23.2	-75.8	-0.4	-0.5	-0.0
<b>2035</b>						
On-Road Sources	1.8	8.6	52.5	13.5	3.3	0.2
Freight Rail	0.0	0.3	0.3	0.0	0.0	0.0
Passenger Rail	0.0	0.6	0.0	0.0	0.0	0.1



Emission Category	Emissions (tons per day)					
	ROG	NO <sub>x</sub>	CO	PM10	PM2.5	SO <sub>x</sub>
Total 2035	1.8	9.5	52.8	13.5	3.3	0.4
Change from Approved Plan	0.0	0.7	-0.9	0.1	0.1	0.0
Net Change From 2016	-4.7	-26.2	-89.3	-0.1	-0.4	-0.0
<b>2050</b>						
On-Road Sources	1.6	8.3	50.0	13.9	3.3	0.2
Freight Rail	0.0	0.3	0.3	0.0	0.0	0.0
Passenger Rail	0.1	1.4	0.0	0.0	0.0	0.3
Total 2050	1.7	10.0	50.3	13.9	3.4	0.5
Change from Approved Plan	0.0	0.8	-1.1	0.1	0.0	0.0
Net Change From 2016	-4.8	-25.7	-91.8	+0.3	-0.3	+0.1

Source: Refer to Appendix B for modeling assumptions, inputs, and results.

<sup>1</sup>Throughout this table and in all other results in this section that are compared to the approved Plan it is important to note that results are those from the conditions modeled in this SEIR. These include the removal of the regional road usage charge and its influence on vehicle travel and speeds, but also other changes to the network and the mix of vehicles on the network due to the modeling corrections noted in Chapter 2 of this SEIR. These additional changes affect results in all years. Thus, changes presented here are the net result of all differences between the approved Plan PEIR and this SEIR, and are not solely due to the removal of the regional road usage charge.

### **2025 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a less-than-significant impact for AQ-2 in 2025 because implementation of the approved Plan would not result in a cumulatively considerable net increase in any nonattainment or attainment criteria pollutant as emissions would be lower than baseline (2016) conditions. When compared to the approved Plan, the proposed Amendment would result in small increases in the NO<sub>x</sub> and PM10 emissions (see Table 4.1-2). However, emissions would remain lower than baseline (2016) conditions. Therefore, the conclusion for the proposed Amendment in 2025 would be unchanged from what was identified in the approved Plan PEIR and would remain less than significant.

### **2035**

#### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

As shown in Table 4.1-2, emissions would decrease from 2016 to 2035 under implementation of the proposed Amendment for all emissions as follows:

- ROG reduced by 4.7 tons per day, or 72 percent
- NO<sub>x</sub> reduced by 26.2 tons per day, or 73 percent
- CO reduced by 89.3 tons per day, or 63 percent
- PM10 reduced by 0.1 ton per day, or 1 percent
- PM2.5 reduced by 0.4 ton per day, or 11 percent
- SO<sub>x</sub> reduced by 0.04 ton per day, or 9 percent

Note that in terms of activity, VMT, freight rail, and passenger rail activity is projected to increase between 2016 and 2035. Reductions in emissions across the board are due primarily to federal and State regulations that reduce emissions from vehicles and locomotives over time. Moreover, while passenger rail activity increases, all passenger rail lines (both current and new) are assumed to be operating completely with modern, Tier 4 engines by 2035. Thus, while activity and fuel consumption increase, emissions are reduced because Tier 4 engines emit fewer emissions per gallon of fuel consumed than the current locomotive fleet.

For on-road sources, the average vehicle fleet in 2035 is assumed to be substantially cleaner than the existing fleet. Therefore, while total VMT would increase (4 percent), emissions of all pollutants decrease, because newer vehicles emit less emissions on a per mile basis. It is worth noting that the decrease in PM10 and PM2.5 is less than other pollutants because PM10 and PM2.5 emissions from on-road sources are dominated (comprising 98 percent of PM10 and 94 percent of PM2.5) by paved road dust as well as brake and tire wear in 2035, and emission rates for paved road dust as well as brake and tire wear do not follow the same downward trend as vehicle exhaust. Therefore, PM10 and PM2.5 emissions trend down by 2035, but only slightly.

As shown, when compared to the 2016 baseline conditions, emissions from the proposed Amendment are reduced for each criteria pollutant. Including nonattainment pollutants. There would be no adverse health effects associated with these emissions decreases.

### **2035 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a less-than-significant impact for AQ-2 in 2035 because implementation of the approved Plan would not result in a cumulatively considerable net increase in any nonattainment or attainment criteria pollutant as emissions would be lower than baseline (2016) conditions. When compared to the approved Plan, the proposed Amendment would result in small increases in the NO<sub>x</sub>, PM10, and PM2.5 emissions (see Table 4.1-2). However, emissions would remain lower than baseline (2016) conditions. Therefore, the conclusion for the proposed Amendment in 2035 would be unchanged from what was identified in the approved Plan PEIR and would remain less than significant.

### **2050**

#### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

As shown in Table 4.1-2, emissions would decrease from 2016 to 2050 under implementation of the proposed Amendment as follows:

- ROG reduced by 4.8 tons per day, or 74 percent
- NO<sub>x</sub> reduced by 25.7 tons per day, or 72 percent
- CO reduced by 91.8 tons per day, or 65 percent
- PM2.5 reduced by 0.3 ton per day, or 8 percent

As shown in Table 4.1-2, emissions would increase from 2016 to 2050 under implementation of the proposed Amendment as follows:

- PM10 increased by 0.3 ton per day, or 2 percent
- SO<sub>x</sub> increased by 0.1 ton per day, or 25 percent

Note that in terms of activity, VMT, freight rail, and passenger rail activity is projected to increase between 2016 and 2050. Reductions in emissions for ROG, NO<sub>x</sub>, CO, and PM<sub>2.5</sub> are due primarily to federal and State regulations that reduce emissions from vehicles and locomotives over time. Moreover, while passenger rail activity increases, all passenger rail lines (both current and new) are assumed to be operating completely with modern, Tier 4 engines by 2050. Thus, while activity and fuel consumption increase, emissions from passenger rail are reduced because Tier 4 engines emit fewer emissions per gallon of fuel consumed than the current locomotive fleet. Note that in 2050, emissions of CO and SO<sub>x</sub> from passenger rail are expected to increase because there are no Tier 4 reductions assumed for CO and SO<sub>x</sub>; thus, CO and SO<sub>x</sub> emissions from rail increase along with the increase in activity and fuel consumption.

For on-road sources, the average vehicle fleet in 2050 is assumed to be substantially cleaner than the existing fleet. Therefore, while total VMT would increase (7.3 percent), emissions of all pollutants decrease except PM<sub>10</sub> and SO<sub>x</sub>, because newer vehicles emit less emissions on a per mile basis. The PM<sub>10</sub> emissions increase because PM<sub>10</sub> emissions from road dust as well as brake and tire wear are not assumed to decrease on a per-mile basis over time, and these emissions are tied to increased VMT.

The SO<sub>x</sub> emissions increase because SO<sub>x</sub> emissions from passenger rail are assumed to increase along with the increase in fuel consumption. The approved Plan includes various mobility improvements that aim to increase commuter transit ridership from 3 percent under current conditions to 13 percent by 2050. The approved Plan includes four new commuter rail lines by 2050, and facilitates increased activity along existing (e.g., Amtrak, Coaster, and Sprinter) commuter rail lines. Total transit trips (including both electric light rail [trolley] and commuter rail [diesel]) would increase from 631 daily trips under existing conditions, to over 2,900 daily trips by 2050. This results in an increase from passenger rail diesel fuel combustion on the average day from 7,500 gallons per day under existing conditions to almost 62,000 gallons per day in 2050, due solely to the increase in activity and assuming all new passenger rail activity and rail lines will be powered by Tier 4 diesel engines.

While the SEIR modeling, consistent with the approved Plan PEIR, conservatively assumes all new commuter rail will be diesel, future commuter rail, particularly those lines that begin service after 2035, are actually likely to be powered by zero emission or near-zero emission technologies, such as electric, hybrid, and other technologies and fuels, as those technologies improve, costs decrease, and existing diesel locomotives reach the end of their useful life. As agencies and the State look beyond Tier 4 emissions standards, zero emissions rail is set to dictate the next cycle of rail vehicle design. Zero-emissions is supported by the Governor through Executive Order N-79-20 and is likely to become standard practice in the coming years.

As shown, emissions from the proposed Amendment are reduced for VOC, NO<sub>x</sub>, CO, and PM<sub>2.5</sub> but increase for PM<sub>10</sub> and SO<sub>x</sub>, representing a significant impact. The increase in these emissions can contribute to short- and long-term human health effects described in Section 4.3-1 of the approved Plan PEIR.

SO<sub>x</sub> is a precursor to fine PM formation in the form of sulfates, such as ammonium sulfate, and short-term exposure can aggravate the respiratory system, making breathing difficult. Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease.

Broadly, PM contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems. However, PM<sub>2.5</sub> is more of a concern than PM<sub>10</sub>. CARB states that PM<sub>2.5</sub> is more likely to travel into and deposit on the surface of the deeper parts of the lung, while the EPA states that PM<sub>2.5</sub> poses the greatest risk to health (CARB 2023, EPA 2022). As shown in Table 4.1-2 and as discussed above, while PM<sub>10</sub> emissions increase slightly (2 percent), PM<sub>2.5</sub> emissions decrease (8 percent).

### **2050 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a significant impact for AQ-2 in 2050 because implementation of the approved Plan would result in a cumulatively considerable net increase in PM10 and SO<sub>x</sub> emissions. The proposed Amendment would not result in a change in SO<sub>x</sub> emissions (see Table 4.1-2). When compared to the approved Plan, the proposed Amendment would result in a small increase in PM10 emissions (0.1 ton per day) and a more severe cumulatively considerable net increase in PM10 emissions (see Table 4.1-2). Therefore, the conclusion for the proposed Amendment in 2050 would be unchanged from what was identified in the approved Plan PEIR and would remain significant.

### **Exacerbation of Climate Change Effects**

Consistent with the analysis and findings of the approved Plan PEIR, the proposed Amendment is expected to exacerbate climate change effects on increases in some criteria pollutants. Climate change may result in increased wildfire frequency and intensity, which can increase emissions of particulate matter, carbon monoxide, nitrogen oxide, and other volatile organic compounds. Precipitation during dry seasons may also decrease under climate change, reducing regional ability to fight wildfires and reduce this source of particulate matter (Reidmiller et al. 2018). As mentioned in Section 4.3.1 of the approved Plan PEIR and consistent with this analysis, climate change could increase vehicle idling due to traffic disruption from flooding and wildfire that may block routes, thus increasing the amount of particulate matter and SO<sub>x</sub> coming from vehicles. Because the proposed Amendment may also result in increased PM10 and SO<sub>x</sub> emissions, the air quality impacts from the proposed Amendment may exacerbate climate change impacts.

The proposed Amendment would not cause a considerable net increase in other nonattainment criteria pollutants, such as ROG, NO<sub>x</sub>, CO, and PM2.5. Therefore, although there will be climate change impacts in the San Diego region that could increase emissions of these pollutants, the proposed Amendment would not exacerbate climate change-caused increases of these emissions.

### **MITIGATION MEASURES**

**AQ-2                    RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE IN NONATTAINMENT AND ATTAINMENT CRITERIA POLLUTANTS, INCLUDING VOC, NO<sub>x</sub>, PM10, PM2.5, AND SO<sub>x</sub>**

#### **2050**

The following mitigation measures identified in Section 4.3 of the approved Plan PEIR would still be applicable to the proposed Amendment and would help reduce criteria pollutants.

- **AQ-2a. Secure Incentive Funding**
- **AQ-2b. Zero Emission Trains**

As identified in Section 4.3 of the approved Plan PEIR and discussed in further detail in Sections 4.8, *Greenhouse Gas Emissions*, and 4.16, *Transportation*, of the approved Plan PEIR, mitigation measures **GHG-5a**, **GHG-5b**, **GHG-5d**, **GHG-5f**, and **TRA-2** would also reduce PM10, PM2.5, and SO<sub>x</sub> emissions and would remain applicable to the proposed Amendment. Section 4.5, *Transportation*, of this SEIR, includes minor updates to mitigation

measure **TRA-2**. Section 4.3, *Greenhouse Gas Emissions*, of this SEIR includes an additional mitigation measure, **GHG-5g**, that would also reduce air quality impacts associated with the proposed Amendment.

- **GHG-5a. Allocate Competitive Grant Funding to Projects that Reduce GHG Emissions and for Updates to CAPs or GHG Reduction Plans**
- **GHG-5b. Establish New Funding Programs for Zero-Emissions Vehicles and Infrastructure**
- **GHG-5d. Develop and Implement Regional Digital Equity Strategy and Action Plan to Advance Smart Cities and Close the Digital Divide**
- **GHG-5f. Implement Measures to Reduce GHG Emissions from Development Projects**
- **GHG-5g. Prepare/Develop a Regional Climate Action Plan**
- **TRA-2. Achieve Further VMT Reductions for Transportation and Development Projects**

#### SIGNIFICANCE AFTER MITIGATION

Mitigation measures **GHG-5a**, **GHG-5b**, **GHG-5d**, **GHG-5f**, and **GHG-5g** would reduce PM10 and PM2.5 emissions from tire wear, brake wear, and vehicle exhaust. In addition, mitigation measure **TRA-2** would reduce criteria pollutants through project-level VMT reduction measures, as discussed in Section 4.5 of this SEIR. Measures to reduce VMT or vehicle exhaust (e.g., electric vehicles [EVs]) in these mitigation measures would reduce PM10 and SO<sub>x</sub> emissions and associated concentrations.

Mitigation measure **AQ-2a** would reduce PM10 and SO<sub>x</sub> emissions from on-road sources by securing funding to implement ways to reduce all emissions, including PM10 and SO<sub>x</sub> emissions from mobile sources.

Mitigation measure **AQ-2b** would reduce exhaust PM10 and SO<sub>x</sub> emissions from commuter trains by replacing diesel fuel combustion with zero-emission energy sources. The SO<sub>x</sub> impact in 2050 is due primarily to fuel combustion from commuter trains, since SO<sub>x</sub> emissions scale linearly with fuel consumption, regardless of the engine tier. This mitigation measure would be implemented in all new rail lines after 2035, and would reduce diesel fuel consumption by 46 percent in 2050 relative to unmitigated conditions. This would result in a similar 46 percent reduction in SO<sub>x</sub> from passenger rail and a 25 percent reduction in SO<sub>x</sub> overall, as shown in Table 4.1-3. After mitigation, SO<sub>x</sub> emissions would be reduced to below 2016 conditions.

**Table 4.1-3  
Proposed Amendment Emission Estimates After Mitigation for 2050**

Emission Category	Emissions (tons per day)					
	ROG	NO <sub>x</sub>	CO	PM10	PM2.5	SO <sub>x</sub>
2050 Mitigated						
On-Road Sources <sup>1</sup>	1.6	8.3	50.0	13.9	3.4	0.3
Freight Rail <sup>1</sup>	0.0	0.3	0.3	0.0	0.0	0.0
Passenger Rail <sup>2</sup>	0.0	0.8	0.0	0.0	0.0	0.2
Total 2050	1.7	9.4	50.3	13.9	3.4	0.4
Change from Approved Plan	0.0	0.9	-1.1	0.1	0.1	0.0

Emission Category	Emissions (tons per day)					
	ROG	NO <sub>x</sub>	CO	PM10	PM2.5	SO <sub>x</sub>
Net Change From 2016 <sup>3</sup>	-4.8	-26.3	-91.8	+0.3	-0.3	0.0

<sup>1</sup> On-road and Freight Rail emissions are unchanged from the unmitigated emission estimates shown in Table 4.1-2.

<sup>2</sup> Passenger Rail emissions assume a 46 percent decrease in fuel consumption in 2035.

<sup>3</sup> 2016 emissions are shown in Table 4.1-2.

Mitigation has been identified for PM10 (**AQ-2a**) and SO<sub>x</sub> (**AQ-2b**). Mitigation measure **AQ-2b** would reduce SO<sub>x</sub> emissions so that they would be less than cumulatively considerable, and therefore less than significant. However, for mitigation measure **AQ-2a** and other PM-reducing mitigation measures, it cannot be guaranteed that PM10 emissions would be reduced to where they would be less than cumulatively considerable. Therefore, impacts related to cumulatively considerable net increases in air pollutant emissions (Impact AQ-2) would remain significant and unavoidable.

#### **AQ-4 EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL PM10 AND PM2.5 CONCENTRATIONS**

#### **ANALYSIS METHODOLOGY**

If the proposed Amendment would violate the PM10 or PM2.5 air quality standards or substantially contribute to an existing violation, then it would be considered to expose sensitive receptors to substantial PM10 and PM2.5 concentrations, which in turn would contribute to adverse health effects. Under the CAAQS, the SDAB is designated as a State nonattainment area for PM10 and PM2.5 (as well as ozone). The San Diego region is in attainment of the NAAQS for PM10 and PM2.5 (as well as other criteria pollutants). This analysis is based on operational emissions associated with forecasted regional growth and land use change and planned transportation network improvements and programs. The assumptions for operational emissions calculations are provided in Appendix B of this SEIR and remain unchanged from the approved Plan PEIR.

Consistent with the analysis used in the approved Plan PEIR, the analysis to evaluate whether the proposed Amendment would violate any PM10 or PM2.5 air quality standard or contribute substantially to an existing projected air quality violation involves two main steps.

1. Existing baseline mass emissions and future mass emissions in 2025, 2035, and 2050 under the proposed Amendment were estimated for on-road, freight rail, and commuter rail sources. Methods and assumptions for projecting mass emissions are presented in Appendix B of this SEIR. Results are presented in Impact AQ-2.
2. Based on these emission estimates, a detailed localized analysis was performed for each analysis year to determine whether the operational emissions of the proposed Amendment would violate an air quality standard or contribute substantially to an existing violation.

Methods and results for the PM10 and PM2.5 modeling are presented in detail in Appendix B of this SEIR. Because San Diego County is designated as a State nonattainment area for both PM10 and PM2.5, localized modeling is performed for both PM10 and PM2.5.

#### **Health Impacts**

The ambient air quality standards are health-based standards. Therefore, in this impact analysis, when the proposed Amendment would result in a new violation of a particulate standard or substantially contribute to

an existing violation, it would also contribute to these adverse health effects. Health impacts of diesel particulates, a TAC and subset of PM10 and PM2.5 emissions, are analyzed separately in Impact AQ-5.

This analysis identifies and maps receptors in 2016 and future years within the areas exposed to specified concentrations of PM10 and PM2.5 emitted from the proposed Amendment sources. These receptors would be at greatest risk of experiencing the health effects listed in Section 4.3 of the approved Plan PEIR.

As discussed in the approved Plan PEIR, given the limitations of modeling tools and assumptions, receptor exposure numbers are an indication of relative exposure, and not a precise prediction. Also, because of the conservative modeling assumptions (see Appendix B to the SEIR), the analysis presents maximum ambient air quality impacts. For these reasons, the actual exposure to particulate matter would likely be lower than presented in this analysis. Proven scientific models that are designed to quantitatively correlate mass emissions of particulates from a plan or project to project-specific localized health impacts (e.g., number of cases of decreased lung function) are not available. Similarly, given the limitations of the localized particulate methodology, it is not possible to directly and accurately correlate increased standards violations to project-specific health impacts. The localized health effects of new PM standard violations or substantial contributions to existing violations are best quantified by the Impact AQ-5 health risk assessment for TACs, which include air toxics and diesel particulates.

## IMPACT ANALYSIS

### 2025

#### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

Maximum changes in concentrations of 24-hour and annual levels of PM2.5 and PM10 from 2016 to 2025 from major roadways, freeways, and highways under implementation of the proposed Amendment are shown in Table 4.1-4 and Table 4.1-5, respectively. For PM2.5, modeling shows a small decrease in concentrations in some areas, no change in some areas, and a small increase in some areas. However, all increases would be less than the criteria identified above for a new violation or substantial contribution to an existing violation. This impact is less than significant.

For PM10, modeling shows no change in some areas and a small increase in some areas. However, concentrations would increase above thresholds within the Escondido domain for the annual CAAQS. These exceedances in Escondido are due primarily to road dust from freeway travel.<sup>1</sup> The maximum increases in Escondido are at receptor locations immediately adjacent to I-15. These PM10 increases would contribute to a new violation or substantially contribute to an existing violation. The impact for PM10 is significant. The locations of PM10 exceedances for 2025 are shown on Figure 4.1-1.

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<sup>1</sup> While brake and tire wear emissions would make up a portion of the modeled PM10 concentrations in Escondido, the largest source of PM10 emissions that contribute to the modeled PM10 concentrations is from road dust.

**Table 4.1-4  
Summary of Incremental PM2.5 Concentrations, 2025**

Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM2.5 Annual CAAQS	0.0	-0.6	0	0	No
PM2.5 24-hour NAAQS	0.0	-1.0	0	0	No
PM2.5 Annual NAAQS	0.0	-1.0	0	0	No

Source: Appendix B of this SEIR.  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

**Table 4.1-5  
Summary of Incremental PM10 Concentrations, 2025**

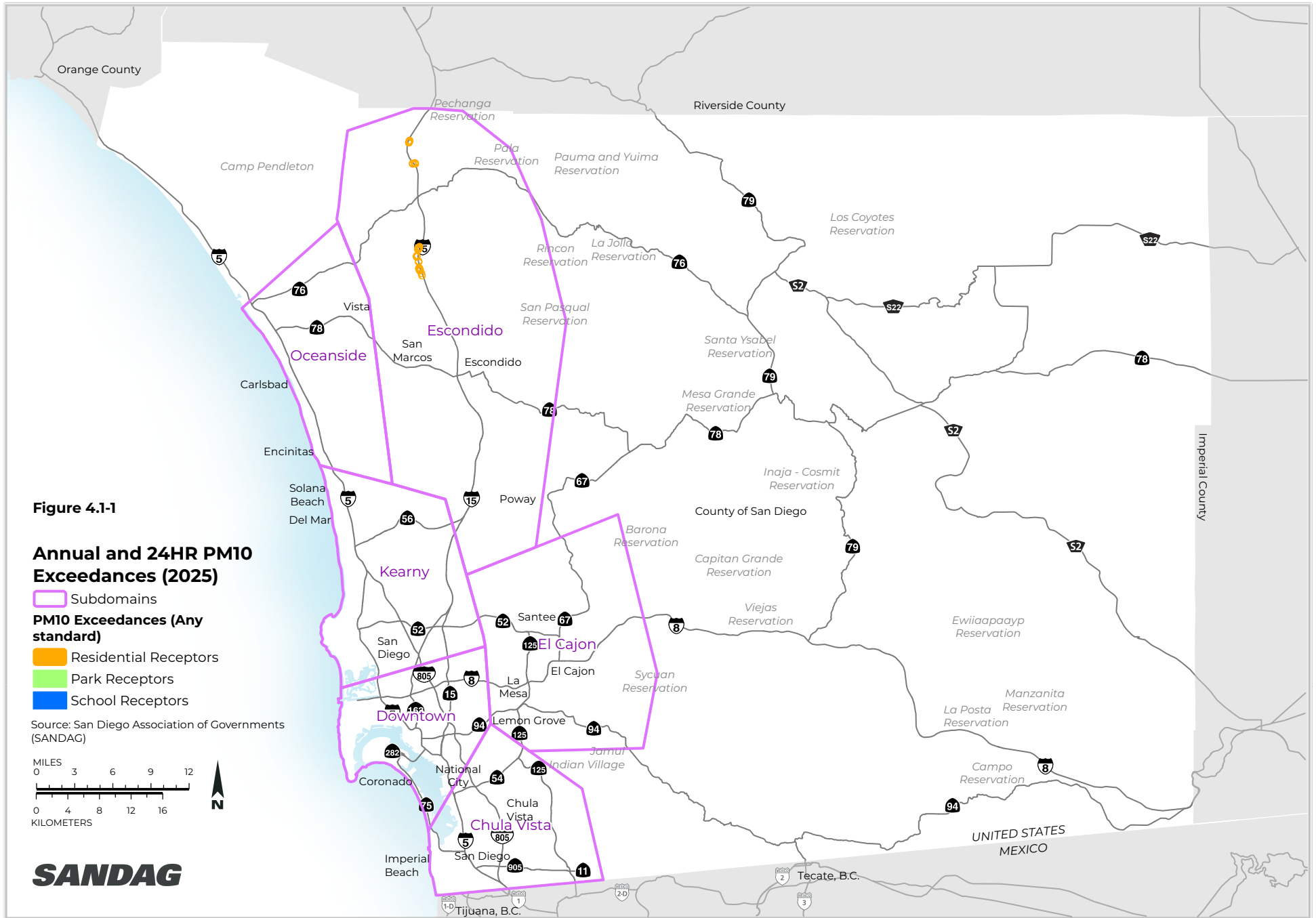
Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM10 24-hour NAAQS	5	1	0	0	No
PM10 Annual CAAQS	1	-1	28	-5	Yes <sup>1</sup>
PM10 24-hour CAAQS	6	0	0	-1	No

Source: Appendix B of this SEIR.  
<sup>1</sup>These exceedances are in the Escondido domain.  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

### **2025 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified that Impact AQ-4 would be significant in 2025 because implementation of forecasted regional growth and land use change and planned transportation network improvements and programs under the approved Plan would substantially contribute to violations or create new violations of annual PM10 CAAQS in the Escondido domain and 24-hour PM10 CAAQS in the Chula Vista domain. Although the exceedances of the annual PM10 CAAQS would remain, the proposed Amendment would eliminate the exceedances in Chula Vista and reduce the area of threshold exceedance in Escondido. Therefore, because the proposed Amendment would reduce the areas that exceed the annual PM10 CAAQS, the conclusion for the proposed Amendment in 2025 would be unchanged from what was identified in the approved Plan PEIR and would remain significant.





2035

**Regional Growth and Land Use Change and Transportation Network Improvements and Programs**

Maximum changes in concentrations of 24-hour and annual levels of PM<sub>2.5</sub> and PM<sub>10</sub> from 2016 to 2035 from major roadways, freeways, and highways with implementation of the proposed Amendment are shown in Tables 4.1-6 and 4.1-7, respectively. For PM<sub>2.5</sub>, modeling shows no change in some areas and a small increase in some areas. However, all increases would be less than the criteria identified above for a new violation or substantial contribution to an existing violation. This impact for PM<sub>2.5</sub> is less than significant.

For PM<sub>10</sub>, modeling shows no change in some areas and a small increase in some areas. However, concentrations would increase above thresholds within the El Cajon and Escondido domains for the annual CAAQS. These exceedances in El Cajon and Escondido are due primarily to road dust from freeway travel<sup>2</sup> The maximum increase in El Cajon is at a single receptor location immediately adjacent to SR 125; the maximum increases in Escondido are at receptor locations immediately adjacent to I-15. These PM<sub>10</sub> increases would contribute to a new violation or substantially contribute to an existing violation. The impact for PM<sub>10</sub> is significant. The locations of PM<sub>10</sub> exceedances for 2035 are shown on Figure 4.1-2.

**Table 4.1-6  
Summary of Incremental PM<sub>2.5</sub> Concentrations, 2035**

Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM <sub>2.5</sub> Annual CAAQS	1.0	0.4	0	0	No
PM <sub>2.5</sub> 24-hour NAAQS	1.0	0.0	0	0	No
PM <sub>2.5</sub> Annual NAAQS	0.5	-0.5	0	0	No

Source: Appendix B of this SEIR.  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

**Table 4.1-7  
Summary of Incremental PM<sub>10</sub> Concentrations, 2035**

Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM <sub>10</sub> 24-hour NAAQS	10	0	0	0	No
PM <sub>10</sub> Annual CAAQS	3	0	136	23	Yes <sup>1</sup>

<sup>2</sup> See Footnote 2.

Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM10 24-hour CAAQS	14	0	0	-6	No

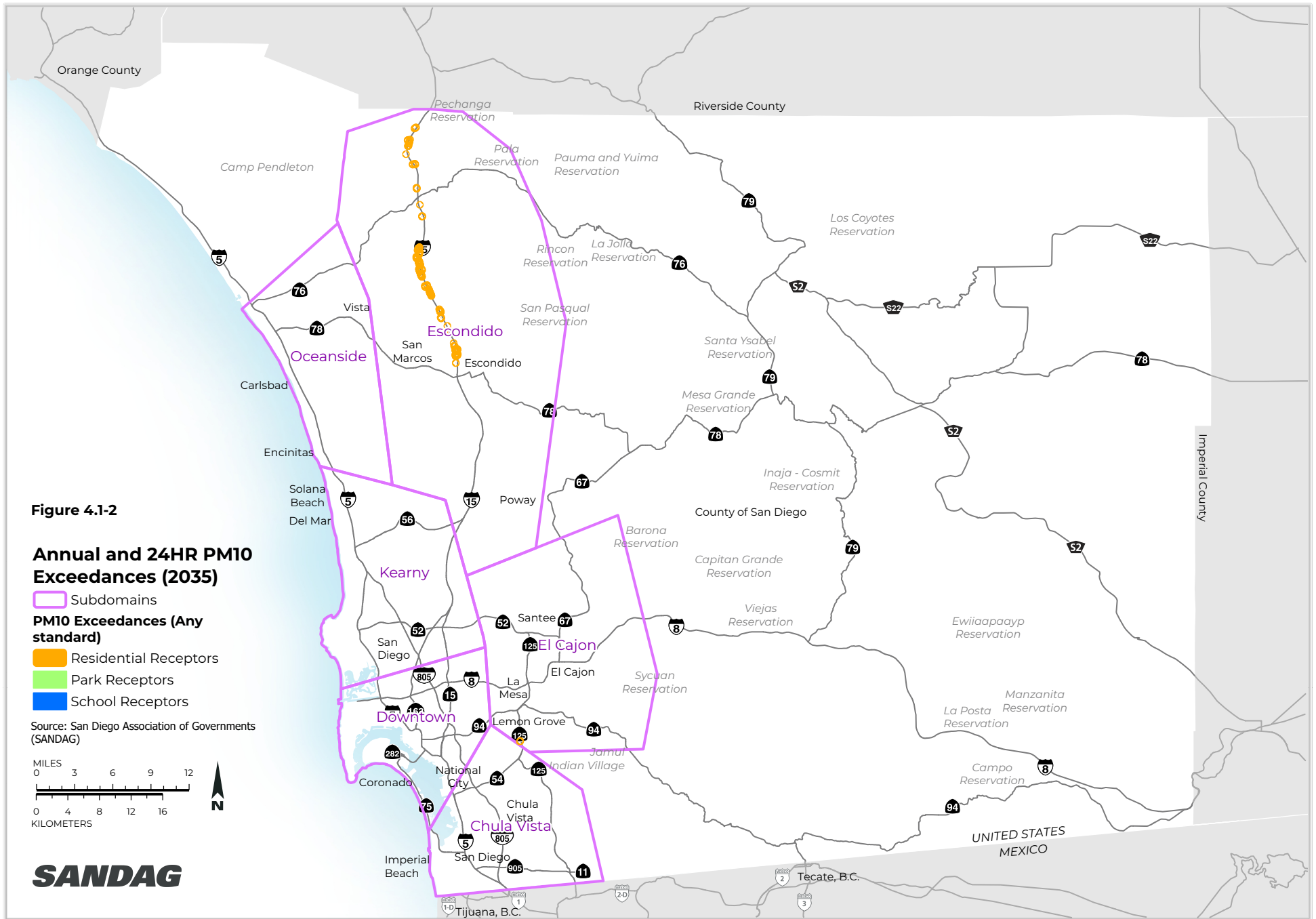
Source: Appendix B of this SEIR.

<sup>1</sup> These exceedances are mostly in the Escondido domain (135 acres), with some exceedances in the El Cajon domain (1 acre)

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

### **2035 Conclusion**

**Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified that Impact AQ-4 would be significant in 2035 because implementation of forecasted regional growth and land use change and planned transportation network improvements and programs under the approved Plan would substantially contribute to violations or create new violations of annual PM10 CAAQS in the El Cajon and Escondido domains and 24-hour PM10 CAAQS in the Chula Vista domain. Although the exceedances of the annual PM10 CAAQS would remain, the proposed Amendment would eliminate the exceedances of the 24-hour PM10 CAAQS in the Chula Vista domain and reduce the area of threshold exceedance in Escondido. However, the proposed Amendment would increase the area of threshold exceedance for the annual PM10 CAAQS in Escondido. In addition, the proposed Amendment would substantially contribute to or create new violations of annual PM10 CAAQS in areas not previously identified in the approved Plan PEIR. Therefore, because the proposed Amendment would expose new areas to exceedances of the annual PM10 CAAQS this would be a substantially more severe significant impact in 2035.



## 2050

**Regional Growth and Land Use Change and Transportation Network Improvements and Programs**

Maximum changes in concentrations of 24-hour and annual levels of PM<sub>2.5</sub> and PM<sub>10</sub> from 2016 to 2050 from major roadways, freeways, and highways under implementation of the proposed Amendment are shown in Tables 4.1-8 and 4.1-9, respectively. For PM<sub>2.5</sub>, modeling shows no change in some areas and a small increase in some areas. However, all increases would be less than the criteria identified above for a new violation or substantial contribution to an existing violation. Consistent with the findings and analysis of the approved Plan PEIR, the impact for PM<sub>2.5</sub> is less than significant.

For PM<sub>10</sub>, modeling shows no change in some areas and a small increase in some areas. However, concentrations would increase above thresholds within the El Cajon, Escondido, and Oceanside domains for the annual CAAQS, as well as in Chula Vista for the 24-hour CAAQS. These exceedances in El Cajon, Escondido, Oceanside, and Chula Vista are due primarily to road dust from freeway travel.<sup>3</sup> The maximum increase in El Cajon is at receptor locations immediately adjacent to SR 125; the maximum increases in Escondido are at various receptor locations immediately adjacent to I-15 and SR 78; the maximum increases in Oceanside are at various receptor locations immediately adjacent to I-5 and SR 76; and the maximum increases in Chula Vista are at receptor locations immediately adjacent to SR 125.

These PM<sub>10</sub> increases would contribute to a new violation or substantially contribute to an existing violation. The impact for PM<sub>10</sub> is significant. The locations of PM<sub>10</sub> exceedances for 2050 are shown on Figure 4.1-3.

**Table 4.1-8  
Summary of Incremental PM<sub>2.5</sub> Concentrations, 2050**

Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM <sub>2.5</sub> Annual CAAQS	1	0.3	0	0	No
PM <sub>2.5</sub> 24-hour NAAQS	1	-1	0	0	No
PM <sub>2.5</sub> Annual NAAQS	0.6	-0.4	0	0	No

Source: Appendix B of this SEIR.  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

<sup>3</sup> See Footnote 2.

**Table 4.1-9  
Summary of Incremental PM10 Concentrations, 2050**

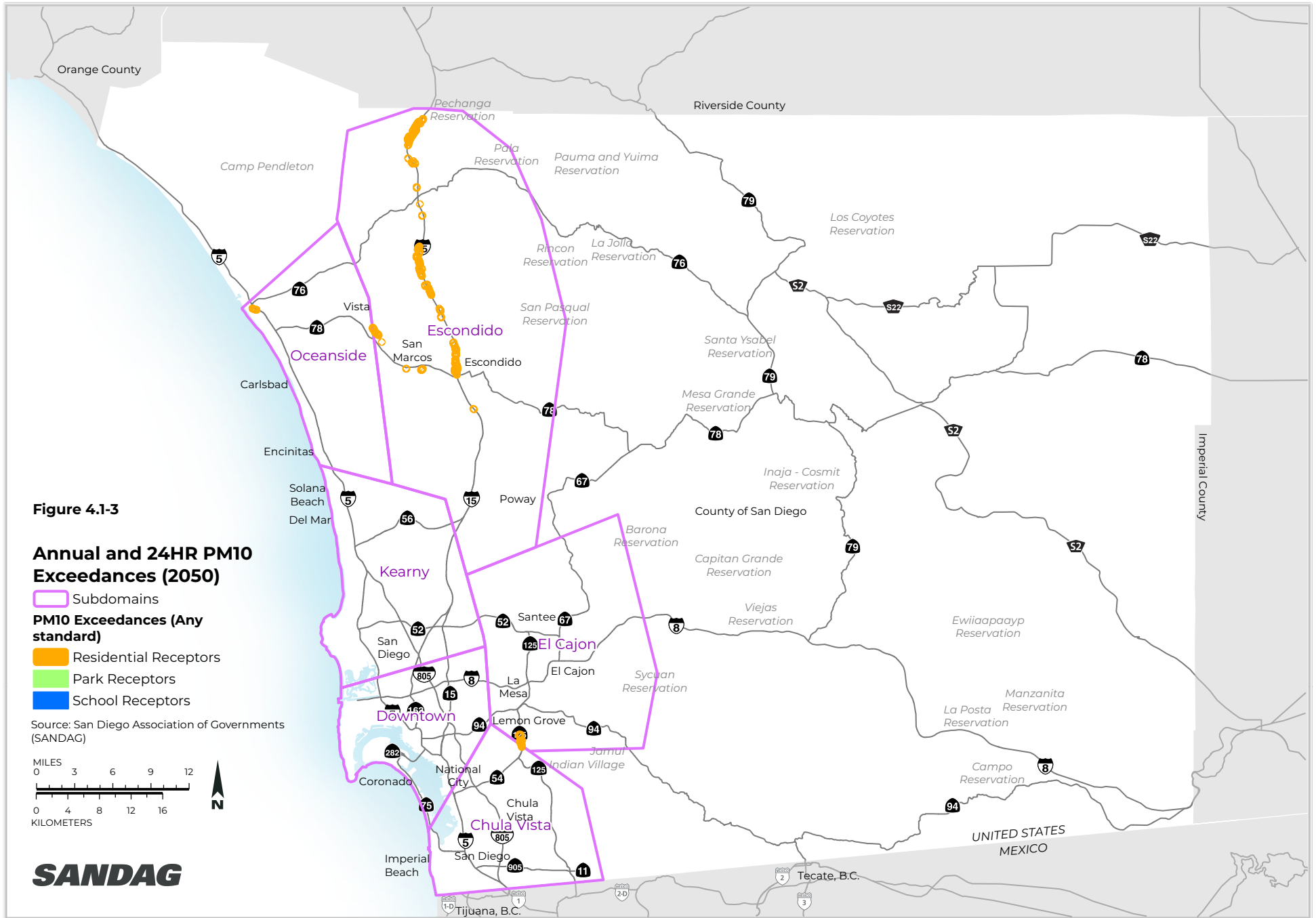
Standard	Maximum Incremental Concentration ( $\mu\text{g}/\text{m}^3$ )		Area of Threshold Exceedance (acres)		Significant Impact?
	Proposed Amendment	Change from Approved Plan	Proposed Amendment	Change from Approved Plan	
PM10 24-hour NAAQS	9	-1	0	0	No
PM10 Annual CAAQS	4	0	303	30	Yes <sup>1</sup>
PM10 24-hour CAAQS	13	-2	2	0	Yes <sup>2</sup>

Source: Appendix B of this SEIR.

<sup>1</sup>These exceedances are mostly in the Escondido domain (274 acres) and in the El Cajon domain (22 acres), with some exceedances in the Oceanside domain (7 acres)

<sup>2</sup>These exceedances are in the Chula Vista domain.

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter



### 2050 Conclusion

**Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified that Impact AQ-4 would be significant in 2050 because implementation of forecasted regional growth and land use change and planned transportation network improvements and programs under the approved Plan would substantially contribute to violations or create new violations of annual PM10 CAAQS in the Kearny, El Cajon, and Escondido domains and 24-hour PM10 CAAQS in the Chula Vista domain. The proposed Amendment would increase the area of threshold exceedance for the annual PM10 CAAQS. In addition, the proposed Amendment would substantially contribute or create new violations of annual PM10 CAAQS in the Oceanside domain not previously identified in the approved Plan PEIR. Therefore, because the proposed Amendment would expose new areas to exceedances of the annual PM10 CAAQS and 24-hour PM10 CAAQS in 2050, this would be a substantially more severe significant impact.

### Exacerbation of Climate Change Effects

Consistent with the analysis and findings of the approved Plan PEIR, the proposed Amendment is expected to exacerbate climate change effects on exposing sensitive receptors to substantial PM10 and PM2.5 concentrations. Climate change may result in increased wildfire frequency and intensity, which can increase emissions of particulate matter. Precipitation during dry seasons may also decrease under climate change, reducing regional ability to fight wildfires and reduce this source of particulate matter (Reidmiller et al. 2018). Furthermore, as mentioned in Section 4.3.1 of the approved Plan PEIR and consistent with this analysis, climate change could increase the incidence of flooding and wildfire that may block routes and disrupt traffic; this could increase vehicle idling and thus increase the amount of PM10 and PM2.5 coming from vehicles (WSP 2018).

As the proposed Amendment would result in increased exposure of sensitive receptors to PM10 and PM2.5 (Impact AQ-4), the air quality impacts expected from climate change may add to the proposed Amendment's PM impacts.

### MITIGATION MEASURES

#### AQ-4 EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL PM10 AND PM2.5 CONCENTRATIONS

#### 2025, 2035, and 2050

The following mitigation measures identified in Section 4.3 of the approved Plan PEIR would still be applicable to the proposed Amendment and would help reduce PM emissions and exposure to PM emissions.

- **AQ-2a. Secure Incentive Funding.**
- **AQ-4. Reduce Exposure to Localized Particulate Emissions.**

As identified in Section 4.3 of the approved Plan PEIR, the following mitigation measures identified in Sections 4.8 and 4.16 of the approved Plan PEIR would further reduce PM10 and PM2.5 emissions and would remain applicable to the proposed Amendment. Section 4.5 of this SEIR includes minor updates to mitigation measure **TRA-2**. Section 4.3, *Greenhouse Gas Emissions*, of this SEIR includes an additional mitigation measure, **GHG-5g**, that would also reduce air quality impacts associated with the proposed Amendment.



- **GHG-5a. Allocate Competitive Grant Funding to Projects that Reduce GHG Emissions and for Updates to CAPs or GHG Reduction Plans**
- **GHG-5b. Establish New Funding Programs for Zero-Emissions Vehicles and Infrastructure**
- **GHG-5d. Develop and Implement Regional Digital Equity Strategy and Action Plan to Advance Smart Cities and Close the Digital Divide**
- **GHG-5f. Implement Measures to Reduce GHG Emissions from Development Projects**
- **GHG-5g. Prepare/Develop a Regional Climate Action Plan**
- **TRA-2. Achieve Further VMT Reductions for Transportation and Development Projects**

## **SIGNIFICANCE AFTER MITIGATION**

### **2025, 2035, and 2050**

Mitigation measure **AQ-2a** will help secure incentive funding to reduce PM emissions from mobile sources. Mitigation measure **AQ-4** will reduce the exposure of sensitive receptors to localized PM emissions with the implementation of design measures.

Mitigation measures **GHG-5a**, **GHG-5b**, **GHG-5d**, **GHG-5f**, and **GHG-5g** would reduce PM10 and PM2.5 emissions from tire wear, brake wear, and vehicle exhaust. In addition, mitigation measure **TRA-2** would reduce criteria pollutants through project-level VMT reduction measures. Measures to reduce VMT or vehicle exhaust (e.g., EVs) in these mitigation measures would reduce PM10 and PM2.5 emissions and associated concentrations.

Although mitigation would reduce impacts, there is no guarantee that all projects would be reduced to below a level of significance. Impacts would remain significant for the Escondido area for 2025, 2035, and 2050; the El Cajon area for 2035 and 2050; and the Chula Vista and Oceanside areas for 2050. Thus, impacts would be significant and unavoidable.

### **AQ-5 EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL TAC CONCENTRATIONS**

#### **ANALYSIS METHODOLOGY**

This analysis addresses the exposure of sensitive receptors to substantial concentrations of TACs. Consistent with the analysis in the approved Plan PEIR, a health risk assessment was performed to analyze exposure of sensitive receptors to substantial concentrations of TACs, and increases in cancer risk associated with such exposure. For this analysis, sensitive receptors are defined as residential, school, and recreational land uses.

Consistent with the methodology used in the approved Plan PEIR, the following criteria were used to evaluate whether implementation of the proposed Amendment would expose sensitive receptors to substantial concentrations of TACs:

1. Does the proposed Amendment result in increases in cancer risk to sensitive receptors over baseline (2016) conditions that exceed 10 in 1 million?
2. Does the proposed Amendment expose sensitive receptors to total cancer risks above 100 in 1 million?
3. Does the proposed Amendment result in increases in health risks to sensitive receptors for non-cancer hazards as measured by a total health hazard index (THI) above 1.0?

The methodology and detailed results for the health risk assessment are described in detail in Appendix B to this SEIR.

### Health Impacts

Exposure to diesel particulates and TACs may result in adverse health effects, both increased cancer risk as well as non-cancer health effects, as described in Section 4.3.1 of the approved Plan PEIR and consistent with this analysis.

This health risk assessment identifies and maps sensitive receptors in 2016 and future years within the areas exposed to specified concentrations of TAC emissions to determine where cancer and non-cancer risk thresholds are exceeded. For the assessment, sensitive receptors are locations represented by residential, school, and recreational land uses. Health risk assessment results are presented separately for cancer and non-cancer effects. For cancer risks, the results include a summary of the risk at the maximally exposed sensitive receptor, and the area (in acres) that exceeds the applicable threshold, which is 10 in 1 million for plan-level increase in risk and 100 in 1 million for cumulative effects. For non-cancer risks, the results include a summary of the risk at the maximally exposed sensitive receptor, and the area (in acres) that exceeds the applicable threshold, which is 1.0 for both chronic and acute hazard effects.

Given the limitations of modeling tools and assumptions, sensitive receptor exposure numbers are an indication of relative exposure, and not a precise prediction. Actual exposure would be lower because of the conservative EMFAC 2017 modeling assumptions used in the cancer risk analysis (see Appendix B to this SEIR). The cancer risk of a given area is a measure of any one person's likelihood of contracting cancer due to exposure from a particular carcinogen; it is not a measure of how many people will contract cancer.

## IMPACT ANALYSIS

### 2025

#### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

*Criterion 1: Does the proposed Amendment result in increases in cancer risk to sensitive receptors over baseline (2016) conditions that exceed 10 in 1 million?*

Table 4.1-10a summarizes health effects in 2025 for the three receptor types. Table 4.1-10b shows the change in health effects from the proposed Amendment compared to the approved Plan in 2025.

For land uses near existing roadway and rail sources, the incremental risk at the maximally exposed sensitive receptors is below 2016 conditions. For all residential, park, or school sensitive receptors near existing roadway and rail sources, there are none that show an increase in cancer risk in 2025 relative to 2016 conditions. Therefore, the impact on sensitive receptors near existing emission sources is less than significant.

For sensitive receptors near new emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds the threshold at residential receptors. (Please note that new emission sources here are the same under the approved Plan and the proposed Amendment.) Under implementation of the proposed Amendment, risk continues to exceed the 10 in 1 million threshold in a number of locations. Therefore, the impact on sensitive receptors near new emission sources is significant.

For new sensitive receptors in new land uses, the incremental risk at the maximally exposed sensitive receptors exceeds the threshold at residential and recreational receptors. Under implementation of the proposed Amendment, risk continues to exceed the 10 in 1 million threshold in a number of locations. Therefore, the impact on new sensitive receptors in new land uses is significant.

Sensitive receptors exposed to new emission sources and new sensitive receptors that show an incremental increase in cancer risk above thresholds in 2025 are shown on Figure 4.1-4.

**Table 4.1-10a**  
**Summary of Cancer Health Risk, 2025**

Receptor Type	2016		2025	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
Existing Sources				
Residential	444	7,555	-5	0
Recreational	14	20	0	0
School	11	2	0	0
New Sources				
Residential	--	--	53	2
Recreational	--	--	1	0
School	--	--	0	0
New Land Uses				
Residential	--	--	149	964
Recreational	--	--	18	2
School	--	--	3	0

Source: Appendix B of this SEIR.

Notes: Cancer risk threshold is 10 in 1 million. Modeled cancer risks were rounded to the nearest whole number.

**Table 4.1-10b**  
**Change in Cancer Health Risk from Approved Plan, 2025**

Receptor Type	2016		2025	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
Existing Sources				
Residential	-3	-8	0	0
Recreational	1	-4	0	0
School	0	0	0	0
New Sources				
Residential	--	--	-1	-5
Recreational	--	--	-2	0
School	--	--	0	0

Receptor Type	2016		2025	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
New Land Uses				
Residential	--	--	0	16
Recreational	--	--	18	2
School	--	--	3	0

Source: Appendix B of this SEIR.

Notes: Cancer risk threshold is 10 in 1 million. Modeled cancer risks were rounded to the nearest whole number.



*Criterion 2: Does the proposed Amendment expose sensitive receptors to total cumulative cancer risks above 100 in 1 million?*

Table 4.1-11 summarizes cumulative health risk at residential sensitive receptors in 2025 relative to 2016 conditions. As shown, the maximum cumulative cancer risk and the number of sensitive receptors in the modeling exposed to 100 per million health risk would decrease. This reduction in exposure is due in part to regulatory policies that reduce emissions from diesel trains and vehicles and gasoline vehicles due to State and federal programs designed to reduce emissions of TACs and improve fuel efficiency. Thus, reductions in the number of exposed individuals would occur despite the approved Plan's forecasted increase in the population and housing units within the region, which would remain applicable for the proposed Amendment.

**Table 4.1-11  
Summary of Cumulative Health Risk, 2025**

Receptor Type	2016		2025		2025 vs. 2016	
	Maximum Cumulative Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Cumulative Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Change in Maximum Cumulative Cancer Risk (per million)	Change in Area of Threshold Exceedance (acres)
Residential	1,015	7,537	934	7,400	-81	-137
Change from Approved Plan	0	-33	-12	-39	-12	-6

Source: Appendix B of this SEIR.

Note: Modeled cancer risks were rounded to the nearest whole number.

The SCS portion of the approved Plan includes proposed land use changes, with a focus on development within Mobility Hubs or Smart Growth Opportunity Areas, which would remain unchanged with the proposed Amendment. These Mobility Hubs are proposed for communities with a high concentration of people, destinations, and travel choices where densification is envisioned in the SCS. Many of these proposed land uses are within areas that are near existing pollution sources. Although the proposed Amendment, like the approved Plan, would contribute TAC emissions at both the regional and local scale, these contributions would not increase existing hazards, when taking into account the reduction of emissions over time due to regulatory policies.

TAC emissions are summarized in Table 4.1-12. Overall, TAC emissions decline 60 to 91 percent relative to 2016. Given this reduction in TACs, the proposed Amendment would not increase existing hazards, taking into account the effect of regulatory policies over time. Based on the above analysis, this impact is less than significant.

**Table 4.1-12**  
**Summary of Toxic Air Contaminants Tons per Year, 2025**

Year	Butadiene1,3	Acetaldehyde	Acrolein	Benzene	Ethyl Benzene	Formaldehyde	Naphthalene	PAH	DPM
2016	0.023	0.110	0.0120	0.25	0.120	0.220	0.0230	0.027	0.55
2025	0.002	0.032	0.0028	0.10	0.041	0.077	0.0064	0.0077	0.10
Change vs. 2016	-91%	-71%	-77%	-60%	-66%	-65%	-72%	-71%	-82%
Change from Approved Plan	0.0	0.0	-0.0001	0.0	0.0	-0.002	0.0001	0.0076	0.007

Source: Appendix B of this SEIR.

Note: Some values have been rounded to the nearest ten thousandths or hundred thousandths.

PAH = polycyclic aromatic hydrocarbons; DPM = diesel particulate matter.

*Criterion 3: Does the proposed Amendment result in increases in health risks to sensitive receptors for non-cancer hazards as measured by a THI above 1.0?*

Table 4.1-13a summarizes non-cancer health effects in 2025 for the three receptor types. Table 4.1-13b shows the change in non-cancer health effects from the proposed Amendment compared to the approved Plan in 2025.

For land uses near existing roadway and rail sources, the incremental non-cancer risk at the maximally exposed sensitive receptors is below 2016 conditions. For all residential, park, or school sensitive receptors near existing roadway and rail sources, there are no sensitive receptors that show an increase in chronic hazard or acute hazard in 2025 relative to 2016 conditions. Therefore, the impact on sensitive receptors near existing emission sources is less than significant.

For sensitive receptors that would be exposed to new emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds the chronic threshold at residential and recreational receptors. The maximally exposed areas are within the Downtown and Chula Vista domains. Non-cancer chronic risk at various residential and recreational receptor locations exceeds the 1.0 hazard index threshold. Therefore, the impact on sensitive receptors near new emission sources is significant.

For new sensitive receptors in new land uses that would be exposed to existing emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds both the acute and the chronic threshold at residential uses and would exceed the chronic threshold for recreational and school uses. The maximally exposed area for acute hazard is within the Escondido domain. The maximally exposed area for chronic hazard is within the El Cajon domain, with exceedances in each domain. Non-cancer acute and chronic risks at various residential receptor locations exceed the 1.0 hazard index threshold. Therefore, the impact on new sensitive receptors in new land uses is significant.

**Table 4.1-13a**  
**Summary of Non-cancer Hazards, 2025**

Receptor Type	2016 Maximum Hazard Index		Maximum Incremental Change vs. 2016		Incremental Area of Threshold Exceedance (acres)	
	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard
<b>Existing Sources</b>						
Residential	7.1	52.8	-0.1	-0.6	0	0
Recreational	2.3	40.0	-0.2	-0.8	0	0
School	1.4	25.0	0	0	0	0
<b>New Sources</b>						
Residential	--	--	0.2	5.2	0	2
Recreational	--	--	0.1	1.7	0	7
School	--	--	0	0	0	0
<b>New Land Uses</b>						
Residential	--	--	2.1	15.1	3	963
Recreational	--	--	0.7	9.5	0	56
School	--	--	0.3	5.9	0	7

Source: Appendix B of this SEIR.

Notes: Non-cancer hazard risk threshold is 1.0 for both Acute and Chronic Hazards. Modeled non-cancer hazard risks were rounded to the nearest one decimal place.

**Table 4.1-13b**  
**Change in Non-cancer Hazards from Approved Plan, 2025**

Receptor Type	2016 Maximum Hazard Index		Maximum Incremental Change vs. 2016		Incremental Area of Threshold Exceedance (acres)	
	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard
<b>Existing Sources</b>						
Residential	0.2	-0.1	0.0	0.0	0	0
Recreational	0.0	3.0	-0.1	0.0	0	0
School	-0.1	0.1	0.0	0.0	0	0
<b>New Sources</b>						
Residential	--	--	0.0	-0.2	0	-5
Recreational	--	--	-0.2	-5.1	0	2
School	--	--	0.0	0.0	0	0
<b>New Land Uses</b>						
Residential	--	--	0.0	0.2	-2	13
Recreational	--	--	0.7	9.5	0	56
School	--	--	0.3	5.9	0	7

Source: Appendix B of this SEIR.

Notes: Non-cancer hazard risk threshold is 1.0 for both Acute and Chronic Hazards. Modeled non-cancer hazard risks were rounded to the nearest one decimal place.



## **2025 Conclusion**

**Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified that Impact AQ-5 would be significant in 2025 because the approved Plan would expose new receptors to substantial TAC emissions. As discussed above, the proposed Amendment would not expose existing sensitive receptors but would expose new receptors to substantial concentrations of TAC emissions in 2025. In addition, the proposed Amendment would increase the incremental area of threshold exceedance for new land uses, result in new cancer risk exceedances for new recreational land uses, and result in new chronic hazard exceedances for new recreational and school land uses. Therefore, this would be a substantially more severe significant impact in 2025.

## **2035**

### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

*Criterion 1: Does the proposed Amendment result in increases in cancer risk to sensitive receptors over baseline (2016) conditions that exceed 10 in 1 million?*

Table 4.1-14a summarizes health effects in 2035 for the three receptor types. Table 4.1-14b shows the change in health effects from the proposed Amendment compared to the approved Plan in 2035.

For land uses near existing roadway and rail sources, the incremental risk at the maximally exposed receptors is below 2016 conditions. There are no existing residential, park, or school receptors that show an increase in cancer risk in 2035. Therefore, the impact on existing sensitive receptors near existing emission sources is less than significant.

For sensitive receptors near new emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds the threshold at residential receptors. The threshold is exceeded at various residential receptors within each modeling domain. The maximally exposed areas are within the El Cajon and Downtown domains. Risk exceeds the 10 in 1 million threshold in a number of locations. Therefore, the impact on sensitive receptors near new emission sources is significant.

For new sensitive receptors in new land uses, the incremental risk at the maximally exposed sensitive receptors exceeds the threshold at residential and recreational receptors. The threshold is exceeded at various residential receptors within each modeling domain. The maximally exposed areas are within the Downtown and El Cajon domains. Risk exceeds the 10 in 1 million threshold in a number of locations. Therefore, the impact on new sensitive receptors in new land uses is significant.

Sensitive receptors exposed to new emission sources and new sensitive receptors that show an incremental increase in cancer risk above thresholds in 2035 are shown on Figure 4.1-5.

**Table 4.1-14a**  
**Summary of Cancer Health Risk, 2035**

Receptor Type	2016		2035	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
Existing Sources				
Residential	444	7,555	-6	0
Recreational	14	20	0	0
School	11	2	0	0
New Sources				
Residential	--	--	114	1,292
Recreational	--	--	2	0
School	--	--	0	0
New Land Uses				
Residential	--	--	137	1,201
Recreational	--	--	18	2
School	--	--	2	0

Source: Appendix B of this SEIR.

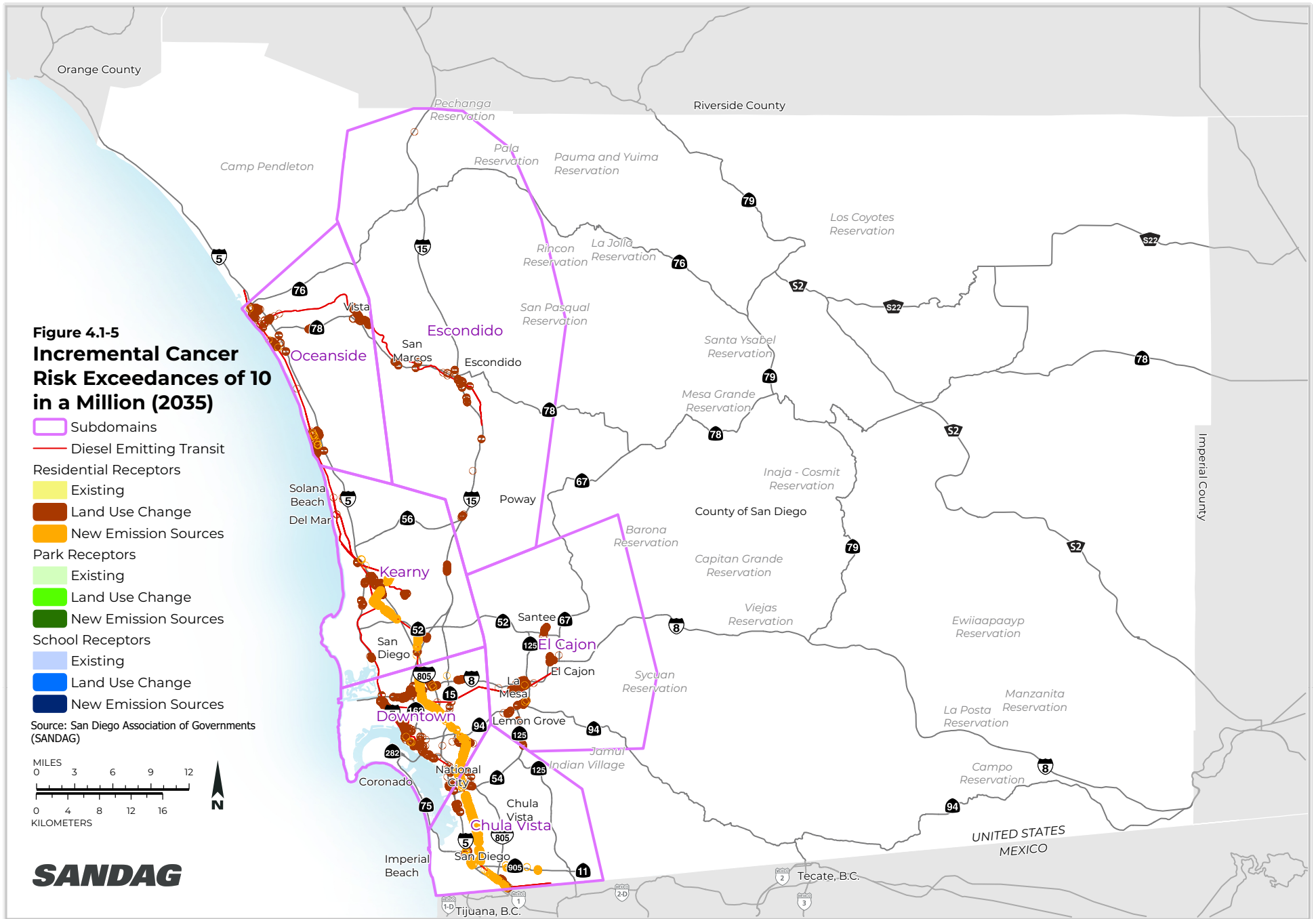
Notes: Cancer risk threshold is 10 in 1 million. Modeled cancer risks were rounded to the nearest whole number.

**Table 4.1-14b**  
**Change in Cancer Health Risk from Approved Plan, 2035**

Receptor Type	2016		2035	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
Existing Sources				
Residential	-3	-8	0	0
Recreational	-1	-5	0	0
School	0	0	0	0
New Sources				
Residential	--	--	-18	31
Recreational	--	--	0	0
School	--	--	0	0
New Land Uses				
Residential	--	--	0	46
Recreational	--	--	18	2
School	--	--	2	0

Source: Appendix B of this SEIR.

Notes: Cancer risk threshold is 10 in 1 million. Modeled cancer risks were rounded to the nearest whole number.



*Criterion 2: Does the proposed Amendment expose sensitive receptors to total cancer risks above 100 in 1 million?*

Table 4.1-15 summarizes cumulative health risk at residential receptors in 2035 relative to 2016 conditions. As shown, the maximum cumulative cancer risk and the number of receptors in the modeling exposed to 100 per million health risk would decrease. This reduction in exposure is due in part to regulatory policies that reduce emissions from diesel trains and vehicles and gasoline vehicles due to State and federal programs designed to reduce emissions of TACs and improve fuel efficiency. Thus, reductions in the number of exposed individuals would occur despite the approved Plan's forecasted increase in the population and housing units within the region, which would remain applicable for the proposed Amendment.

**Table 4.1-15  
Summary of Cumulative Health Risk, 2035**

Receptor Type	2016		2035		2035 vs. 2016	
	Maximum Cumulative Cancer Risk	Area of Threshold Exceedance (acres)	Maximum Cumulative Cancer Risk	Area of Threshold Exceedance (acres)	Change in Maximum Cumulative Cancer Risk	Change in Area of Threshold Exceedance (acres)
Residential	1,015	7,537	915	7,217	-100	-320
Change from Approved Plan	0.0	-33	-13	3	-13	36

Source: Appendix B of this SEIR.

Note: Modeled cancer risks were rounded to the nearest whole number.

The SCS portion of the approved Plan includes proposed land use changes, with a focus on development within Mobility Hubs or Smart Growth Opportunity Areas which would remain unchanged with the proposed Amendment. These Mobility Hubs are proposed for communities with a high concentration of people, destinations, and travel choices where densification is envisioned in the SCS. Many of these proposed land uses are within areas that are near existing pollution sources. Although the proposed Amendment, like the approved Plan, would contribute TAC emissions at both the regional and local scale, these contributions would not increase existing hazards, when taking into account the reduction of emissions over time due to regulatory policies.

TAC emissions are summarized in Table 4.1-16. As shown, project conditions in 2035 show a decrease in all TAC emissions. Overall, TAC emissions decline between 70 and 100 percent relative to 2016 conditions. Given this reduction in TACs, the proposed Amendment would not increase existing hazards, taking into account the effect of regulatory policies over time. Based on the above analysis, this impact is less than significant.

**Table 4.1-16**  
**Summary of Toxic Air Contaminants Emissions per Year, 2035**

Year	Butadiene1,3	Acetaldehyde	Acrolein	Benzene	Ethyl Benzene	Formaldehyde	Naphthalene	PAH	DPM
2016	0.023	0.110	0.0120	0.250	0.120	0.220	0.0230	0.027	0.55
2035	0.0001	0.0250	0.0020	0.075	0.028	0.055	0.0046	0.005	0.092
Change vs. 2016	-100%	-77%	-83%	-70%	-77%	-75%	-80%	-81%	-83%
Change from Approved Plan	0.0	0.0	0.0	0.0	0.0	-0.002	-0.0001	0.005	0.014

Source: Appendix B of this SEIR.

Notes: Some values have been rounded to the nearest ten thousandths or hundred thousandths.

PAH = polycyclic aromatic hydrocarbons; DPM = diesel particulate matter.

*Criterion 3: Does the proposed Amendment result in increases in health risks to sensitive receptors for non-cancer hazards as measured by a THI above 1.0?*

Table 4.1-17a summarizes non-cancer health effects in 2035 for the three receptor types. Table 4.1-17b shows the change in non-cancer health effects from the proposed Amendment compared to the approved Plan in 2035.

For land uses near existing roadway and rail sources, the incremental non-cancer risk at the maximally exposed sensitive receptors is below 2016 conditions. For all residential, park, or school sensitive receptors near existing roadway and rail sources, there are no sensitive receptors that show an increase in chronic hazard or acute hazard in 2035 relative to 2016 conditions. Therefore, the impact on sensitive receptors near existing emission sources is less than significant.

For sensitive receptors that would be exposed to new emission sources, the incremental change in chronic hazard index at the maximally exposed sensitive receptors exceeds the threshold at residential and recreational receptors. The maximally exposed areas are within the El Cajon, Downtown, and Chula Vista domains, with other increases in Kearny above the threshold. Non-cancer chronic risk at various residential and recreational receptor locations exceeds the 1.0 hazard index threshold. Therefore, the impact on sensitive receptors near new emission sources is significant.

For new sensitive receptors in new land uses that would be exposed to existing emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds both the acute and the chronic threshold at residential uses and the chronic threshold for the recreational and school uses. The maximally exposed area for acute hazard is within the Escondido domain. The maximally exposed area for chronic hazard is within the El Cajon domain, with exceedances in Chula Vista, Downtown, Escondido, and Kearny. Non-cancer acute and chronic risk at various residential, recreational, and school receptor locations exceeds the 1.0 hazard index threshold. Therefore, the impact on new sensitive receptors in new land uses is significant.

**Table 4.1-17a**  
**Summary of Non-cancer Hazards, 2035**

Receptor Type	2016 Maximum Hazard Index		Maximum Incremental Change vs. 2016		Incremental Area of Threshold Exceedance (acres)	
	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard
<b>Existing Sources</b>						
Residential	7.1	52.8	-0.1	-0.7	0	0
Recreational	2.3	40.0	-0.2	-0.9	0	0
School	1.4	25.0	0	0	0	0
<b>New Sources</b>						
Residential	--	--	0.5	12.3	0	1,280
Recreational	--	--	0.1	3.3	0	130
School	--	--	0	0	0	0
<b>New Land Uses</b>						
Residential	--	--	1.3	10.9	1	992
Recreational	--	--	0.2	6.0	0	49
School	--	--	0.2	3.9	0	11

Source: Appendix B of this SEIR.

Notes: Non-cancer hazard risk threshold is 1.0 for both Acute and Chronic Hazards. Modeled non-cancer hazard risks were rounded to the nearest one decimal place.

**Table 4.1-17b**  
**Change in Non-cancer Hazards from Approved Plan, 2035**

Receptor Type	2016 Maximum Hazard Index		Maximum Incremental Change vs. 2016		Incremental Area of Threshold Exceedance (acres)	
	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard
<b>Existing Sources</b>						
Residential	0.2	-0.1	-0.1	0.1	0	0
Recreational	0.0	3.0	-0.1	0.0	0	0
School	-0.1	-0.1	0.0	0.0	0	0
<b>New Sources</b>						
Residential	--	--	-0.3	-1.9	0	14
Recreational	--	--	-0.1	-1.4	0	7
School	--	--	0.0	0.0	0	0
<b>New Land Uses</b>						
Residential	--	--	0.1	2.3	-1	-169
Recreational	--	--	0.2	6.0	0	49
School	--	--	0.2	3.9	0	11

Source: Appendix B of this SEIR.

Notes: Non-cancer hazard risk threshold is 1.0 for both Acute and Chronic Hazards. Modeled non-cancer hazard risks were rounded to the nearest one decimal place.

### **2035 Conclusion**

**Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified that Impact AQ-5 would be significant in 2035 because the approved Plan would expose new receptors to substantial TAC emissions. As discussed above, the proposed Amendment would not expose existing sensitive receptors but would expose new receptors to substantial concentrations of TAC emissions in 2035. In addition, the proposed Amendment would increase the incremental area of threshold exceedance for new sources and new land uses and result in new chronic hazard exceedances for new recreational and school land uses. Therefore, this would be a substantially more severe significant impact in 2035.

### **2050**

#### ***Regional Growth and Land Use Change and Transportation Network Improvements and Programs***

*Criterion 1: Does the proposed Amendment result in increases in cancer risk to sensitive receptors over baseline (2016) conditions that exceed 10 in 1 million?*

Table 4.1-18a summarizes health effects in 2050 for the three receptor types. Table 4.1-18b shows the change in health effects from the proposed Amendment compared to the approved Plan in 2050.

For land uses near existing roadway and rail sources, the incremental risk at the maximally exposed receptors is below 2016 conditions. There are no existing residential, park, or school receptors near existing emission sources that show an increase in cancer risk in 2050. Therefore, the impact on existing sensitive receptors near existing emission sources is less than significant.

For sensitive receptors near new emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds the threshold at residential and recreational receptors. The threshold is exceeded at various residential receptors within each modeling domain due almost exclusively to the new commuter rail lines. The maximally exposed areas are within the El Cajon and Downtown domains, with residential receptor exceedances in each modeling domain. Risk exceeds the 10 in 1 million threshold in a number of locations due to new rail activity. Therefore, the impact on sensitive receptors near new emission sources is significant.

For new sensitive receptors in new land uses, the incremental risk at the maximally exposed sensitive receptors exceeds the threshold at residential and recreational receptors. The threshold is exceeded at various residential receptors within each modeling domain due to siting of new residential uses near existing rail and roadway sources. The maximally exposed areas are within the Downtown, El Cajon, and Escondido domains. Risk exceeds the 10 in 1 million threshold in a number of locations due to the siting of new land uses. Therefore, the impact on new sensitive receptors in new land uses is significant.

Sensitive receptors exposed to new emission sources and new sensitive receptors that show an incremental increase in cancer risk above thresholds in 2050 are shown on Figure 4.1-6.

**Table 4.1-18a**  
**Summary of Cancer Health Risk, 2050**

Receptor Type	2016		2050	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
Existing Sources				
Residential	444	7,555	-5	0
Recreational	14	20	0	0
School	11	2	0	0
New Sources				
Residential	--	--	102	2,497
Recreational	--	--	18	1
School	--	--	2	0
New Land Uses				
Residential	--	--	135	1,254
Recreational	--	--	17	2
School	--	--	0	0

Source: Appendix B of this SEIR.

Notes: Cancer risk threshold is 10 in 1 million. Modeled cancer risks were rounded to the nearest whole number.

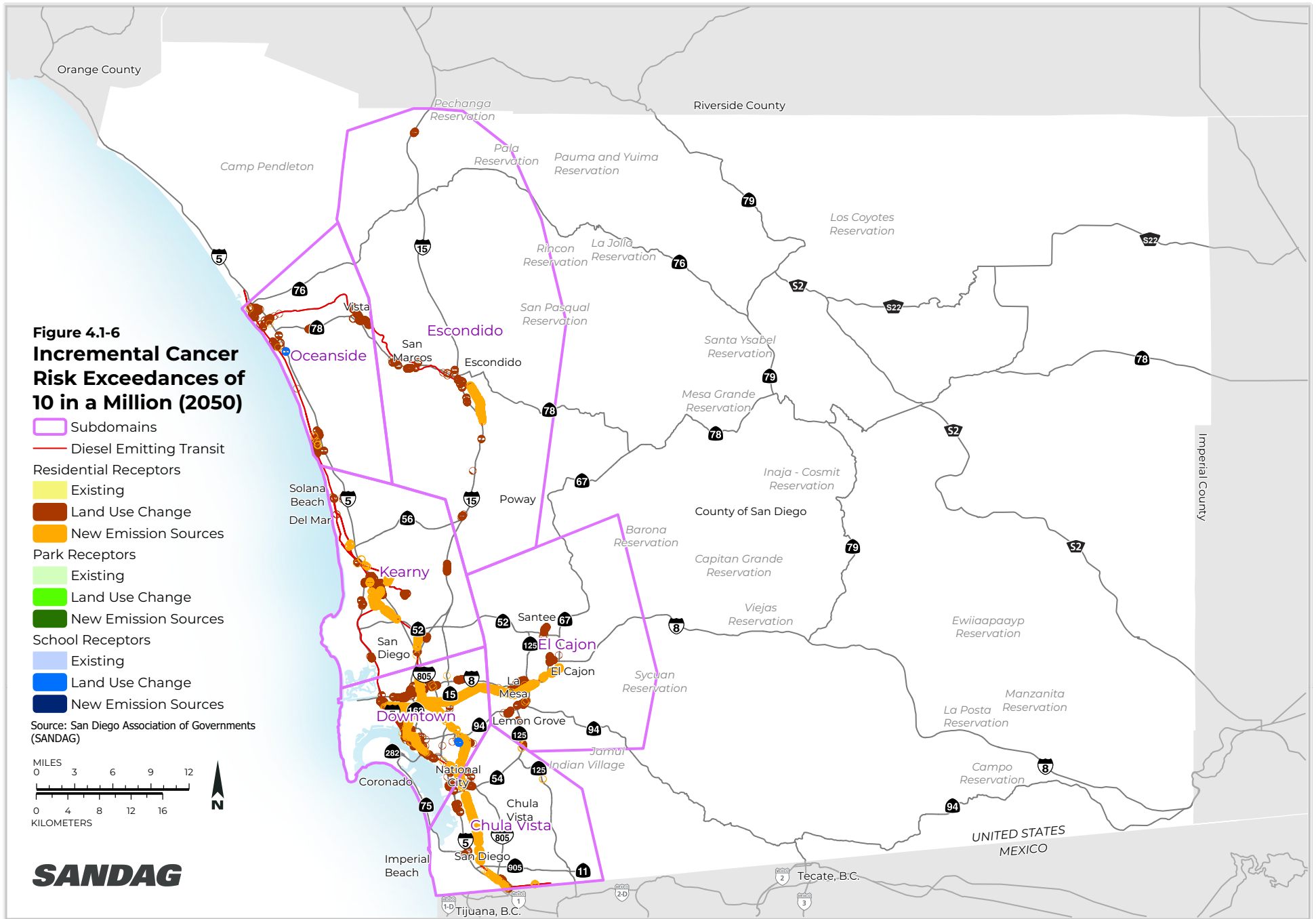
**Table 4.1-18b**  
**Change in Cancer Health Risk from Approved Plan, 2050**

Receptor Type	2016		2050	
	Maximum Cancer Risk (per million)	Area of Threshold Exceedance (acres)	Maximum Incremental Cancer Risk (per million)	Incremental Area of Threshold Exceedance (acres)
Existing Sources				
Residential	-3	-8	0	0
Recreational	1	-5	0	0
School	0	0	0	0
New Sources				
Residential	--	--	-29	16
Recreational	--	--	15	1
School	--	--	1	0
New Land Uses				
Residential	--	--	2	31
Recreational	--	--	17	2
School	--	--	0	0

Source: Appendix B of this SEIR.

Notes: Cancer risk threshold is 10 in 1 million. Modeled cancer risks were rounded to the nearest whole number.





*Criterion 2: Does the proposed Amendment expose sensitive receptors to total cancer risks above 100 in 1 million?*

Table 4.1-19 summarizes cumulative health risk at residential receptors in 2050 relative to 2016 conditions. As shown, the maximum cumulative cancer risk and the number of receptors in the modeling exposed to 100 per million health risk would decrease. This reduction in exposure is due in part to regulatory policies that reduce emissions from diesel trains and vehicles and gasoline vehicles due to State and federal programs designed to reduce emissions of TACs and improve fuel efficiency. Thus, reductions in the number of exposed individuals would occur despite the approved Plan's forecasted increase in the population and housing units within the region, which would remain applicable for the proposed Amendment.

**Table 4.1-19  
Summary of Cumulative Health Risk, 2050**

Receptor Type	2016		2050		2050 vs. 2016	
	Maximum Cumulative Cancer Risk	Area of Threshold Exceedance (acres)	Maximum Cumulative Cancer Risk	Area of Threshold Exceedance (acres)	Change in Maximum Cumulative Cancer Risk	Change in Area of Threshold Exceedance (acres)
Residential	1,015	7,537	912	7,167	-103	-370
Change from Approved Plan	0.0	-33	-10	-65	-10	-32

Source: Appendix B of this SEIR.

Note: Modeled cancer risks were rounded to the nearest whole number.

The SCS portion of the approved Plan includes proposed land use changes, with a focus on development within Mobility Hubs or Smart Growth Opportunity Areas, which would remain unchanged with the proposed Amendment. These Mobility Hubs are proposed for communities with a high concentration of people, destinations, and travel choices where densification is envisioned in the SCS. Many of these proposed land uses are within areas that are near existing pollution sources. Although the proposed Amendment, like the approved Plan, would contribute emissions at both the regional and local scale, these contributions would not increase existing hazards, when taking into account the reduction of emissions over time due to regulatory policies.

TAC emissions are summarized in Table 4.1-20. As shown, project conditions in 2050 show a decrease in all TAC emissions. Overall, TAC emissions decline between 73 and 100 percent relative to 2016 conditions. Given this reduction in TACs, the proposed Amendment would not increase existing hazards, taking into account the effect of regulatory policies over time. Based on the above analysis, this impact is less than significant.

**Table 4.1-20**  
**Summary of Toxic Air Contaminants Tons per Year, 2050**

Year	Butadiene1,3	Acetaldehyde	Acrolein	Benzene	Ethyl Benzene	Formaldehyde	Naphthalene	PAH	DPM
2016	0.023	0.110	0.0120	0.250	0.120	0.220	0.023	0.027	0.55
2050	0.0001	0.024	0.0018	0.067	0.025	0.055	0.0042	0.005	0.0910
Change vs. 2016	-100%	-78%	-85%	-73%	-79%	-75%	-82%	-81%	-83%
Change from Approved Plan	0.0	0.0	0.0	-0.001	0.0	0.003	0.0	0.005	0.02

Source: Appendix B of this SEIR.

Notes: Some values have been rounded to the nearest ten thousandths or hundred thousandths.

PAH = polycyclic aromatic hydrocarbons; DPM = diesel particulate matter.

*Criterion 3: Does the proposed Amendment result in increases in health risks to sensitive receptors for non-cancer hazards as measured by a THI above 1.0?*

Table 4.1-21a summarizes non-cancer health effects in 2050 for the three receptor types. Table 4.1-21b shows the change in non-cancer health effects from the proposed Amendment compared to the approved Plan in 2050.

For land uses near existing roadway and rail sources, the incremental non-cancer risk at the maximally exposed sensitive receptors is below 2016 conditions. For all residential, park, or school sensitive receptors near existing roadway and rail sources, there are no sensitive receptors that show an increase in chronic hazard or acute hazard in 2050 relative to 2016 conditions. Therefore, the impact on sensitive receptors near existing emission sources is less than significant.

For sensitive receptors that would be exposed to new emission sources, the incremental risk at the maximally exposed sensitive receptors far exceeds the chronic threshold at residential and recreational receptors. The maximally exposed areas are within the El Cajon, Downtown, and Chula Vista domains, with increases in all domains above the threshold. In addition, there is one school location in El Cajon that would exceed the chronic threshold. Non-cancer chronic risk at various residential, recreational, and school receptor locations exceed the 1.0 hazard index threshold. Therefore, the impact on sensitive receptors near new emission sources is significant.

For new sensitive receptors in new land uses that would be exposed to existing emission sources, the incremental risk at the maximally exposed sensitive receptors exceeds both the acute and the chronic threshold at residential uses and the chronic threshold at recreational and school uses. The maximally exposed area for acute hazard is within the Chula Vista domain. The maximally exposed area for chronic hazard is within the El Cajon domain, with exceedances in each domain. Non-cancer chronic risk at various residential, recreational, and school receptor locations exceeds the 1.0 hazard index threshold. Therefore, the impact on new sensitive receptors in new land uses is significant.

**Table 4.1-21a**  
**Summary of Non-cancer Hazards, 2050**

Receptor Type	2016 Maximum Hazard Index		Maximum Incremental Change vs. 2016		Incremental Area of Threshold Exceedance (acres)	
	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard
<b>Existing Sources</b>						
Residential	7.1	52.8	0.0	-0.7	0	0
Recreational	2.3	40.0	-0.1	-0.9	0	0
School	1.4	25.0	0	0	0	0
<b>New Sources</b>						
Residential	--	--	0.5	10.7	0	2,463
Recreational	--	--	0.2	4.1	0	220
School	--	--	0.1	2.1	0	1
<b>New Land Uses</b>						
Residential	--	--	1.4	9.9	2	1,212
Recreational	--	--	0.4	5.2	0	44
School	--	--	0.1	3.2	0	22

Source: Appendix B of this SEIR.

Notes: Non-cancer hazard risk threshold is 1.0 for both Acute and Chronic Hazards. Modeled non-cancer hazard risks were rounded to the nearest one decimal place.

**Table 4.1-21b**  
**Change in Non-cancer Hazards from Approved Plan, 2050**

Receptor Type	2016 Maximum Hazard Index		Maximum Incremental Change vs. 2016		Incremental Area of Threshold Exceedance (acres)	
	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard	Acute Hazard	Chronic Hazard
<b>Existing Sources</b>						
Residential	0.2	-0.1	-0.5	-0.1	0	0
Recreational	0.0	3.0	-0.3	0.0	0	0
School	-0.1	0.1	0.0	0.0	0	0
<b>New Sources</b>						
Residential	--	--	-0.4	-3.1	0	-14
Recreational	--	--	-0.4	-0.2	0	-79
School	--	--	-0.1	-0.1	0	0
<b>New Land Uses</b>						
Residential	--	--	-0.1	-1.3	0	-6
Recreational	--	--	0.4	5.2	0	44
School	--	--	0.1	3.2	0	22

Source: Appendix B of this SEIR.

Notes: Non-cancer hazard risk threshold is 1.0 for both Acute and Chronic Hazards. Modeled non-cancer hazard risks were rounded to the nearest one decimal place.

### **2050 Conclusion**

**Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified that Impact AQ-5 would be significant in 2050 because the approved Plan would expose new receptors to substantial TAC emissions. As discussed above, the proposed Amendment would not expose existing sensitive receptors but would expose new receptors to substantial concentrations of TAC emissions in 2050. In addition, the proposed Amendment would increase the incremental area of threshold exceedance for new sources and new land uses, result in new cancer risk exceedances for new recreational sources and land uses, result in new chronic hazard exceedances for schools exposed to new sources, and result in new chronic hazard exceedances for new recreational and school land uses. Therefore, this would be a substantially more severe significant impact in 2050.

### **Exacerbation of Climate Change Effects**

Consistent with the analysis and findings of the approved Plan PEIR, the proposed Amendment could potentially exacerbate climate change effects on exposing sensitive receptors to substantial TAC concentrations. Climate change could increase exposure to some carcinogens, such as through particulate matter from wildfire and flooding inundation of chemical or waste sites that may release carcinogens (Nogueira et al. 2020).

### **MITIGATION MEASURES**

#### **AQ-5 EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL TAC CONCENTRATIONS**

#### **2025, 2035, and 2050**

The following mitigation measures identified in Section 4.3 of the approved Plan PEIR would still be applicable to the proposed Amendment and would help reduce TAC emissions.

- **AQ-2a. Secure Incentive Funding**
- **AQ-4. Reduce Exposure to Localized Particulate Emissions**
- **AQ-5a. Reduce Exposure to Localized Toxic Air Contaminant Emissions**
- **AQ-5b. Reduce Exposure to Localized Toxic Air Contaminant Emissions during Railway Design**

The following mitigation measures identified in Sections 4.8 and 4.16 of the approved Plan PEIR would further reduce TAC emissions and would remain applicable to the proposed Amendment. Section 4.5 of this SEIR, includes minor updates to mitigation measure **TRA-2**. Section 4.3 of this SEIR includes an additional mitigation measure, **GHG-5g**, that would also reduce air quality impacts associated with the proposed Amendment.

- **GHG-5a. Allocate Competitive Grant Funding to Projects that Reduce GHG Emissions and for Updates to CAPs or GHG Reduction Plans**
- **GHG-5b. Establish New Funding Programs for Zero-Emissions Vehicles and Infrastructure**

- **GHG-5d. Develop and Implement Regional Digital Equity Strategy and Action Plan to Advance Smart Cities and Close the Digital Divide**
- **GHG-5f. Implement Measures to Reduce GHG Emissions from Development Projects**
- **GHG-5g. Prepare/Develop a Regional Climate Action Plan**
- **TRA-2. Achieve Further VMT Reductions for Transportation and Development Projects**

## **SIGNIFICANCE AFTER MITIGATION**

### **2025, 2035, 2050**

Mitigation measure **AQ-2a**, as described under Impact AQ-2, will help secure incentive funding to reduce PM emissions from mobile sources. Mitigation measure **AQ-5a** will reduce TAC emissions and TAC emission exposure for existing and new receptors through design and siting requirements. Mitigation measure **AQ-5b** will reduce diesel emission exposure on existing and new receptors through undergrounding and design.

Mitigation measures **GHG-5a**, **GHG-5b**, **GHG-5d**, **GHG-5f**, and **GHG-5g** would reduce PM10 and PM2.5 emissions from tire wear, brake wear, and vehicle exhaust. In addition, mitigation measure **TRA-2** would reduce criteria pollutants through project-level VMT reduction measures. Measures to reduce VMT or vehicle exhaust (e.g., EVs) in these mitigation measures would reduce TAC emissions and associated concentrations.

Although mitigation would reduce impacts, there is no guarantee that impacts would be reduced to below a level of significance for every project. Thus, this impact (Impact AQ-5) would be significant and unavoidable.

### **AQ-6 EXPOSE SENSITIVE RECEPTORS TO CARBON MONOXIDE HOT-SPOTS**

## **ANALYSIS METHODOLOGY**

This analysis addresses the exposure of sensitive receptors to substantial concentrations of CO. A CO hot spot is a localized concentration of CO, typically found at congested intersections, that is above the State or national 1-hour or 8-hour ambient air standards for the pollutant. Projects that do not generate CO concentrations in excess of the health-based NAAQS or CAAQS would not contribute a significant level of CO such that localized air quality and human health would be substantially affected.

As with the approved Plan PEIR, this analysis qualitatively evaluates proposed Amendment CO concentration impacts, including CO hot spots, by comparing them to CO concentrations disclosed in the 2015 Regional Plan EIR. This is justified due to lower VMT here than in the 2015 Regional Plan, cleaner engine technology here compared to that modeled in the 2015 Regional Plan EIR, and lower background CO concentrations than modeled in the 2015 Regional Plan, all implying that the significance finding of the 2015 Regional Plan is unchanged here and does not need to be modeled. This is explained further below.

## **IMPACT ANALYSIS**

### **2025**

Vehicle travel under the approved Plan would decrease by approximately 4,000,000 VMT daily compared to 2025 projections under the 2015 Regional Plan (see Section 4.16 of the approved Plan PEIR). Vehicle travel under the proposed Amendment would increase by approximately 400,000 VMT daily in 2025 compared to the approved Plan (see Section 4.5 of this SEIR); however, VMT and overall vehicle use would continue to be

less than what was assumed in the 2015 Regional Plan. Proposed transportation infrastructure and programs within the approved Plan would continue to help to reduce VMT by providing alternative forms of transportation, including biking, walking, and transit, which would reduce passenger car travel and thereby reduce any exposure to emissions at congested roadways.

The 2015 Regional Plan EIR analyzed CO concentrations at four congested intersections and found impacts to be well below significance thresholds, even for the EIR baseline year 2012. Consistent with the analysis and findings of the approved Plan PEIR, CO emissions would be even lower under the proposed Amendment due to reduced traffic volumes, cleaner engine technology, and lower background CO concentrations, as compared to what was modeled in the 2015 Regional Plan EIR. Thus, CO concentrations would be lower and continue to be well below significance thresholds.

### **2025 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a less-than-significant impact related to exposing sensitive receptors to substantial concentrations of CO in 2025. As discussed above, no new significant environmental effects or a substantial increase in the severity of previously identified significant effects would result due to the proposed Amendment. Implementation of the proposed Amendment would not expose sensitive receptors to substantial concentrations of CO in 2025. Therefore, the conclusion for the proposed Amendment in 2025 would be unchanged from what was identified in the approved Plan PEIR and would remain less than significant.

### **2035**

Vehicle travel under the approved Plan would decrease by approximately 8,500,000 VMT daily compared to the 2035 projections under the 2015 Regional Plan (see Section 4.16 of the approved Plan PEIR). Vehicle travel under the proposed Amendment would increase by approximately 1,700,000 VMT daily in 2035 compared to the approved Plan (see Section 4.5 of this SEIR); however, VMT and overall vehicle use would continue to be less than what was assumed in the 2015 Regional Plan. Proposed transportation infrastructure and programs within the approved Plan would continue to help to reduce VMT by providing alternative forms of transportation, including biking, walking, and transit, which would reduce passenger car travel and thereby reduce any exposure to emissions at congested roadways.

CO emissions for the year 2035 were modeled both for the 2015 Regional Plan EIR and proposed Amendment. According to the 2015 Regional Plan EIR, on-road vehicle sources would be responsible for 71.26 tons per day of CO emissions (Table 4.3-12 of the 2015 Regional Plan EIR). As shown in Table 4.1-2, the proposed Amendment would emit 52.50 tons per day of CO from on-road vehicle sources. Compared to the 2015 Regional Plan EIR, the proposed Amendment would emit approximately 18.75 tons per day fewer CO emissions. According to the 2015 Regional Plan EIR, the implementation of the 2015 Regional Plan would not induce a CO hotspot at four congested intersections for the year 2035. Thus, as the 2015 Regional Plan EIR did not have a CO hot spot impact and modeled higher CO emissions from on-road sources compared to the proposed Amendment, the proposed Amendment would also not have a CO hot spot impact.

### **2035 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a less-than-significant impact related to exposing sensitive receptors to substantial concentrations of CO in 2035. As discussed above, no new significant environmental effects or a

substantial increase in the severity of previously identified significant effects would result due to the proposed Amendment. Implementation of the proposed Amendment would not expose sensitive receptors to substantial concentrations of CO in 2035. Therefore, the conclusion for the proposed Amendment in 2035 would be unchanged from what was identified in the approved Plan PEIR and would remain less than significant.

## **2050**

Vehicle travel under the approved Plan would decrease by approximately 10,700,000 VMT daily compared to 2050 projections under the 2015 Regional Plan (see Section 4.16 of the approved Plan PEIR). Vehicle travel under the proposed Amendment would increase by approximately 1,700,000 VMT daily in 2050 compared to the approved Plan (see Section 4.5 of this SEIR); however, VMT and overall vehicle use would continue to be less than what was assumed in the 2015 Regional Plan. Proposed transportation infrastructure and programs within the approved Plan would continue to help to reduce VMT by providing alternative forms of transportation, including biking, walking, and transit, which would reduce passenger car travel and thereby reduce any exposure to emissions at congested roadways.

The 2015 Regional Plan EIR model results were that on-road vehicle sources CO emissions would be approximately 65.08 tons per day (Table 4.3-16 in the 2015 Regional Plan EIR). Furthermore, the 2015 Regional Plan EIR analyzed CO concentrations at four congested intersections and found impacts to be well below significance thresholds for the year 2050. According to Table 4.1-2, on-road sources within the proposed Amendment would emit approximately 50.0 tons per day of CO. This would be 15.08 tons per day less than what was analyzed within the 2015 Regional Plan EIR. Thus, as the 2015 Regional Plan EIR did not find a CO hotspot at four congested intersections while assuming higher on-road source CO emissions, the proposed Amendment would also not create any CO hotspots.

### **2050 Conclusion**

**No New or Substantially More Severe Significant Impacts in Comparison to the Approved Plan PEIR:** The approved Plan PEIR identified a less-than-significant impact related to exposing sensitive receptors to substantial concentrations of CO in 2050. As discussed above, no new significant environmental effects or a substantial increase in the severity of previously identified significant effects would result due to the proposed Amendment. Implementation of the proposed Amendment would not expose sensitive receptors to substantial concentrations of CO in 2050. Therefore, the conclusion for the proposed Amendment in 2050 would be unchanged from what was identified in the approved Plan PEIR and would remain less than significant.

### **Exacerbation of Climate Change Effects**

Consistent with the analysis and findings of the approved Plan PEIR, the proposed Amendment would not exacerbate climate change effects on exposing sensitive receptors to substantial concentrations of CO. This impact is less than significant for the proposed Amendment, and climate change is not expected to worsen CO hotspots, so there is unlikely to be an exacerbation of climate change effects.