Section 3.2
Air Quality

3.2.1 Introduction

This section analyzes the proposed project's impacts on air quality, including impacts from both construction and operational activities. As part of this analysis, this section describes the approach, methodologies, and models used to estimate the air quality impacts associated with the proposed project. The results are compared to both federal and state air quality criteria and thresholds. Relevant information pertaining to the regulatory framework, current air quality conditions, and air quality improvement plans are discussed.

Air quality-related comments received in response to the NOP were provided by the following agencies and individuals:

- U.S. Environmental Protection Agency (USEPA)
  - Requesting that the Draft EIR include disclosure of air quality impacts and evaluate the feasibility of measures to minimize emissions during construction and operation.
  - Noting that air quality impacts related to the demolition or physical disturbance of structures and facilities that may potentially contain asbestos should be addressed.
- California Coastal Commission (CCC)
  - Noting that it is imperative to reduce coastal resource impacts associated with the redevelopment and expansion of SDIA, including (among others) air quality associated with increased vehicle trips to SDIA.
  - Stating that new development must be consistent with requirements imposed by an air pollution control district or the State Air Resources Board.
- The USEPA and a comment via voicemail from a member of the public
  - Requesting that the Draft EIR discuss human health impacts associated with air pollutant emissions.

Copies of the referenced NOP correspondence are available in Appendix R-A.

Impacts directly related to the air quality comments above are addressed in this section with two exceptions: (1) Impacts related to the demolition or potential disturbance of structures and facilities that may potentially contain asbestos are addressed in Section 3.9, Hazards and Hazardous Materials; and (2) Impacts related to human health associated with air pollutant emissions are addressed in Section 3.4, Human Health Risk.

3.2.2 Pollutants of Interest

Six criteria pollutants were evaluated for the proposed project's construction and operational activities: ozone (O_3); nitrogen dioxide (NO_2); carbon monoxide (CO); sulfur dioxide (SO_2); respirable particulate matter, or particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}); and fine particulate matter, or particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers ($PM_{2.5}$). Due to their recognized role as O_3 precursors, and consistent with standards of practice for CEQA analysis, volatile organic compounds (VOCs), which include hydrocarbons (HC), and oxides of nitrogen (NO_X) were evaluated as surrogates for ozone.[1]

Although lead (Pb) is a criteria pollutant, it was not evaluated because the proposed project would not use any fuels or coatings with lead additives, nor would the proposed project result in a change in the number or operational modes for the general aviation aircraft operating at SDIA that are powered by fuel containing Pb (i.e., AvGas); therefore, the proposed project would have no impacts on Pb levels in the San Diego air basin.

Additional information regarding the six criteria pollutants that were evaluated in the air quality analysis is presented below.

Ozone (O_3)[2]

O_3, the main component of smog, is formed from precursor pollutants rather than being directly emitted from pollutant sources. O_3 forms as a result of VOCs and NO_X reacting in the presence of sunlight. O_3 levels are typically highest in warm-weather months and in urban areas. VOCs, as typically associated with engine emissions, architectural coatings, and paving operations, and NO_X, as typically associated with engine emissions, are termed "O_3 precursors" and their emissions are regulated in order to control the creation of O_3. O_3 damages lung tissue and reduces lung function. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems (e.g., asthmatics), but also healthy children and adults. O_3 can cause health effects such as chest discomfort, coughing, respiratory tract irritation, and decreased pulmonary functions.

Nitrogen Dioxide (NO_2)[3]

NO_2 is a reddish-brown to dark brown gas with an irritating odor. NO_2 forms when nitric oxide reacts with atmospheric oxygen. The primary source of NO_2 is the combustion of fuel. Significant sources of NO_2 at airports are boilers, aircraft operations, and vehicle movements. NO_2 emissions from these sources are highest during high-temperature combustion, such as aircraft takeoff mode. Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases, particularly

[1] The emissions of VOCs and reactive organic gases (ROGs) are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to ROGs as VOCs.

[2] U.S. Environmental Protection Agency. Ozone Pollution – Basic Information about Ozone. Available: https://www.epa.gov/ozone-pollution/ozone-basics.

[3] U.S. Environmental Protection Agency. Nitrogen Dioxide (NO_2) Pollution – Basic Information about NO_2. Available: https://www.epa.gov/no2-pollution/basic-information-about-no2.

asthma, leading to respiratory symptoms (such as coughing, wheezing, or difficulty breathing). Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. The term "nitrogen oxides" accounts for distinct but related compounds, including NO_2. As a conservative assumption for this analysis, it was assumed that all NO_X are emitted as NO_2; therefore, NO_X and NO_2 are considered equivalent in this document.

Carbon Monoxide (CO)[4]

CO is an odorless, colorless gas that is toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in San Diego County are automobiles and other sources, which burn fossil fuels. Breathing air with high concentrations of CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)[5]

Particulate matter consists of solid and liquid particles of dust, soot, aerosols, and other matter small enough to remain suspended in the air for a long period of time. PM_{10} refers to particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (microns, um, or µm) and $PM_{2.5}$ refers to particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers. Particles smaller than 10 micrometers (i.e., PM_{10} and $PM_{2.5}$) represent that portion of particulate matter thought to represent the greatest hazard to public health.[6] PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and are associated with a variety of negative health effects. Exposure to particulate matter can aggravate existing respiratory conditions, increase respiratory symptoms and disease, decrease long-term lung function, and possibly cause premature death. The segments of the population that are most sensitive to the negative effects of particulate matter in the air are the elderly, individuals with cardiopulmonary disease, and children. Aside from adverse health effects, particulate matter in the air causes a reduction of visibility and damage to paints and building materials.

A portion of the particulate matter in the air comes from natural sources, such as windblown dust and pollen. Man-made sources of particulate matter include fuel combustion, automobile exhaust, field burning, cooking, tobacco smoking, factories, and vehicle movement, or other man-made disturbances, on unpaved areas. Secondary formation of particulate matter may occur in some cases where gases like sulfur oxides (SO_X) and NO_X interact with other compounds in the air to form particulate matter. Fugitive dust generated by construction activities is a major source of suspended particulate matter.

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[4] U.S. Environmental Protection Agency. Carbon Monoxide (CO) Pollution in Outdoor Air – Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution. Available: https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.

[5] U.S. Environmental Protection Agency. Particulate Matter (PM) Pollution – Particulate Matter (PM) Basics. Available: https://www.epa.gov/pm-pollution/particulate-matter-pm-basics.

[6] U.S. Environmental Protection Agency. Particle Pollution and Your Health. September 2003. Available: https://www3.epa.gov/airnow/particle/pm-color.pdf.

The secondary creators of particulate matter, SO_X and NO_X, are also major precursors to acidic deposition (acid rain). SO_X is a major precursor to particulate matter formation. NO_X reacts with ammonia, moisture, and other compounds to form nitric acid and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles penetrate sensitive parts of the lungs and can cause or worsen respiratory disease. NO_X has the potential to change the composition of some species of vegetation in wetland and terrestrial systems, to create the acidification of freshwater bodies, impair aquatic visibility, create eutrophication of estuarine and coastal waters, and increase the levels of toxins harmful to aquatic life.

Sulfur Dioxide (SO_2)[7]

Sulfur oxides are formed when fuel containing sulfur (typically, coal, and oil) is burned, and during other industrial processes. The term "sulfur oxides" accounts for distinct but related compounds, primarily SO_2 and sulfur trioxide. As a conservative assumption for this analysis, it was assumed that all SO_X are emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this document. Higher SO_2 concentrations are usually found in the vicinity of large industrial facilities.

The physical effects of SO_2 include temporary breathing impairment and respiratory illness. Children, the elderly, and those who suffer from asthma are most susceptible to the negative effects of exposure to SO_2.

3.2.3 General Approach and Methodology

The overall aim of the air quality analysis was to evaluate the potential effects of the proposed project on regional and local air quality. Existing conditions were delineated, and future-year conditions associated with implementation of the proposed project were identified and compared to existing conditions in order to assess the significance of project impacts. Both construction emissions and operational emissions were analyzed, and two types of methods were used: (1) air pollutant emissions inventories (i.e., estimation of air pollutants in terms of pounds per day or tons per year); and (2) atmospheric dispersion modeling (estimation of air pollutant concentrations in terms of parts per million [ppm] or micrograms per cubic meter [μm^3]).

Of note, in December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502. In that decision, the Supreme Court held that an EIR should "relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions regarding the costs and benefits of" projects. (Id. at p. 510.)

In this instance, and as described above in Section 3.2.2, each of the air pollutants of interest (i.e., the criteria pollutants) addressed in this section affect human health in different ways. The impacts analysis presented in this section assesses the levels of air pollutant emissions and concentrations relative to established federal, state, and local health-based standards. Such standards are described later in Section 3.2.4. Project-related changes in ambient air quality concentrations of

[7] U.S. Environmental Protection Agency. Sulfur Dioxide (SO_2) Pollution – Sulfur Dioxide Basics. Available: https://www.epa.gov/so2-pollution/sulfur-dioxide-basics.

criteria pollutants, typically characterized in terms of micrograms per cubic meter, are measured against National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), as those standards were established by the federal and state governments through scientific study to represent levels that are considered protective of human health and the environment. Project-related emissions of criteria pollutants, typically characterized in terms of pounds per day or tons per year, are measured against thresholds also related to established ambient air quality standards. As described in Section 3.2.6, the thresholds of significance for evaluating project-related emissions are based on the County of San Diego's screening-level thresholds that serve to evaluate whether a proposed project's emissions would violate any air quality standard or contribute substantially to an existing or projected air quality violation.

It is important to note that the federal and state ambient air quality standards, and the regulatory requirements related to attaining those standards, are regional in nature and intended to protect the health of overall populations. The analysis of impacts related to the proposed project is based on the approach and methodology described in Section 3.2.3 utilizing the modeling tools and assumptions described therein, all of which are typical for an EIR analysis under CEQA. While additional emissions associated with a specific project may adversely affect ambient air quality, there is currently not a feasible methodology on a project-specific basis to correlate the expected air quality emissions of a project to the likely health consequences to the general population from those increased emissions. Also, relative to the most notable regional air quality issue for San Diego County, that being O_3 levels exceeding the federal and state ambient air quality standards, the complexity of O_3 formation and the health implications of O_3 warrants evaluation on a regional basis using a regional model and cannot be meaningfully addressed on a project-specific level. These findings are consistent with the "Friant Ranch Interim Recommendation" issued by the Sacramento Metropolitan Air Quality Management District in late April 2019, a copy of which is available online at http://www.airquality.org/LandUseTransportation/Documents/FriantInterimRecommendation.pdf. While that air district is in the process of developing a methodology to correlate expected project-specific air quality emissions to likely health consequences, the air district has determined that "neither the Sac Metro Air District nor any other air district currently have methodologies that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions."

Also of relevance, the San Diego Air Pollution Control District (SDAPCD) has adopted plans and programs designed to achieve attainment of O_3 ambient air quality standards. These attainment plans include emissions inventories, air monitoring data, control measures, modeling, future pollutant-level estimates, and general health information. Attainment planning models rely on regional inputs to determine O_3 formation and concentrations in a regional context, not a project-specific context. Because of the complexity of O_3 formation, the pounds or tons of emissions from a proposed project in a specific geographical location does not equate to a specific concentration of O_3 formation in a given area, because in addition to emission levels, O_3 formation is affected by atmospheric chemistry, geography, and weather. The SDAPCD attainment plans and supporting air model tools are regional in nature and do not provide a meaningful or accurate analysis of the health impacts of specific projects on any given geographic location. Instead, the air quality impact analysis completed for the proposed project is based on current models that are typically used in CEQA evaluation of specific projects and are designed to calculate and disclose the mass emissions

expected from the construction and operation of a proposed project (pounds/day and tons/year). The estimated emissions are then compared to significance thresholds, which are in turn keyed to reducing emissions to levels that will not interfere with the region's ability to attain the health-based standards.

3.2.3.1 Air Pollutant Emission Inventories

Construction emissions were estimated over the proposed project's 15-year construction period (i.e., approximately late 2020/early 2021 to 2035) and the estimates were prepared for construction vehicles, equipment, and construction activities. Operational emissions were calculated for 2018 (existing conditions baseline year-see Section 3.0.2.1 in Chapter 3.0, Environmental Analysis, for basis of baseline year) and the future years 2024, 2026, 2030, and 2035, which coincide with completion of each major subphase of the proposed project. The inventories were prepared using the best available data at the time of the analysis. Emissions were also calculated for the year 2050 as a long-term analysis year that coincides with the planning horizon year in the *San Diego Forward: The Regional Plan | 2015-2050*.[8] The year 2050 emissions inventory is subject to additional uncertainty as compared to the less distant future analyses due to the influences of technological advancements in transportation, as well as the influence of evolving political and economic climates. For the operational inventories, emissions were estimated for aircraft, auxiliary power units (APUs), ground support equipment (GSE), stationary sources (e.g., boilers and cooling towers), building-related energy consumption, and Airport-related motor vehicles.

For the emission inventories, the pollutants CO, NO_X, SO_X, particulate matter ($PM_{10/2.5}$), and HC, presented in terms of VOC, were estimated. For the atmospheric dispersion modeling, concentrations of CO, NO_2, SO_2, and $PM_{10/2.5}$ were derived. Dispersion analysis was not performed to evaluate levels of O_3. The complexity of O_3 formation and the health implications of O_3 warrants evaluation on a regional basis using a regional model and cannot be meaningfully addressed on a project-specific level.

The analysis was conducted using appropriate models and databases from the USEPA, Federal Aviation Administration (FAA), California Air Resources Board (CARB) and SDAPCD. The methodologies used to derive the emission totals are detailed in FAA's *Aviation Emissions and Air Quality Handbook* (the AQ Handbook).[9] Additional information regarding the analysis approach and assumptions is summarized below, with relevant details provided in Appendix R-C.

Construction Emissions

Construction emissions were estimated based on the proposed project's development phasing (i.e., Phases 1a, 1b, 2a, and 2b), as modelled with the *Airport Construction Emissions Inventory Tool* (ACEIT), which specifies the characteristics for on- and off/non-road construction vehicles,

[8] San Diego Association of Governments. San Diego Forward: The Regional Plan | 2015-2050. October 2015. Available: https://www.sdforward.com/previous-plan-dropdown/chapters-and-appendices.

[9] U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy. Aviation Emissions and Air Quality Handbook, Version 3, Update 1. January 2015. Available: https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Air_Quality_Handbook_Appendices.pdf.

equipment, and supporting activities associated with airport construction projects.[10] Emission factors were derived from CARB's *EMFAC2017*[11] model (on-road vehicles) and *OFFROAD 2017*[12] model (non-road equipment). The USEPA's *Compilation of Emission Factors Database* (*AP-42*) was used for demolition, excavation, and materials handling emissions.[13] Additional detail regarding the assumptions used to prepare the construction emissions estimates are provided in Appendix R-C1 (see Section 1.5 of Appendix R-C1 entitled "Construction Activities," which includes details regarding on-road construction vehicles [Section 1.5.1], off-road construction equipment [Section 1.5.2], construction schedules [Section 1.5.3], and hours of construction [Section 1.5.4]).

Operational Emissions

Aircraft-Related

For operational emissions, aircraft engine and APU emissions were computed using the FAA's *Aviation Environmental Design Tool* (AEDT).[14] Because all passenger-related aircraft gates at SDIA are currently equipped with 400 hertz (Hz) electric power (i.e., "ground power") and preconditioned air (PCA), and following the FAA's AQ Handbook, the analysis assumed APU usage for the passenger-related aircraft was seven minutes. For all other aircraft, APU run times were assumed to be AEDT defaults. Additional detail regarding the assumptions used to prepare the emissions estimates for aircraft and APUs are provided in Appendix R-C1 (see Section 1.1 entitled "Aircraft," which includes details regarding aircraft fleet and operations [Section 1.1.1], emission factors [Section 1.1.2], taxi/delay characteristics [Section 1.1.3], runway utilization [Section 1.1.4], and temporal factors [Section 1.1.5]).

GSE emission factors were obtained from CARB's *OFFROAD 2017* model. For purposes of modeling emissions from GSE usage under the existing (i.e., 2018) conditions, SDIA-specific GSE fleet data, including zero-emission electric GSE (eGSE), was used. As noted below in Section 3.2.4, SDIA currently has 78 airside charging ports and over 200 airline-owned alternative-fuel GSE, and it is anticipated that the presence of eGSE at SDIA will continue to grow in the future.

Stationary Sources

With the exception of cooling towers and emergency generators, stationary source emission factors were assumed to be the default AEDT factors. The factors for the cooling towers were obtained from South Coast Air Quality Management District (SCAQMD) guidelines.[15] The factors for the

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[10] Transportation Research Board of the National Academies. Airport Cooperative Research Program (ACRP) Report 102: Guidance for Estimating Airport Construction Emissions – Airport Construction Emissions Inventory Tool (ACEIT), October 2016.

[11] California Air Resources Board. EMFAC2017 On-Road Emissions Inventory Estimation Model. Available: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools.

[12] California Air Resources Board. 2017 Inventory Model for In-Use Off-Road Equipment (OFFROAD2017). Available: https://www.arb.ca.gov/orion/.

[13] U.S. Environmental Protection Agency. AP-42, Compilation of Air Pollutant Emission Factors, Fifth Edition, Volume I, Section 13.2.1, Paved Roads, January 2011, Section 13.2.2 Unpaved Roads, November 2006, Section 13.2.3 Heavy Construction Operations, January 1995.

[14] U.S. Department of Transportation, Federal Aviation Administration. Aviation Environmental Design Tool (AEDT) Version 2d. Available: https://aedt.faa.gov/.

[15] South Coast Air Quality Management District. Guidelines for Calculating Emissions from Cooling Towers. Available: http://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/guid ecalcemiscooltowerdec13.pdf.

emergency generators were obtained from AP-42. Additional detail regarding the assumptions used to prepare the emissions estimates for stationary sources are provided in Appendix R-C1 (see Section 1.2 entitled "Stationary Sources").

Motor Vehicles

Emission factors for motor vehicles were obtained from CARB's *EMFAC2017* model. Additional detail regarding the assumptions used to prepare the emissions estimates for motor vehicles are provided in Appendix R-C1 (see Section 1.3 entitled "Motor Vehicles," including fleet and fuel mix [Section 1.3.1], emission factors [Section 1.3.2], and traffic volumes [Section 1.3.3]).

Other Sources

To account for indirect operational emissions that would result from the proposed project, estimates of pollutant and pollutant precursors resulting from the energy usage from the built-out development were estimated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2.[16] Additional detail regarding the assumptions used to prepare emission estimates from energy usage are provided in Appendix R-C1 (see Section 1.4 entitled "Other Sources").

The construction and operational emissions inventories are reported in units of tons/year and pounds/day. In this way, the results are evaluated on a common basis and enable direct comparison to the County of San Diego's thresholds for project-related emissions.[17]

3.2.3.2 Air Pollutant Concentrations

For the atmospheric dispersion modeling, ambient (i.e., outdoor) pollutant concentrations were predicted along a grid of receptors located around the Airport perimeter and at sensitive land uses (e.g., parks, schools, health-care facilities, etc.). For completeness, background pollutant values were added to the modeling results. The highest (i.e., "worst-case") results are reported in units of ppm and µg/m^3 for comparison to the NAAQS and CAAQS.

The proposed project's impacts on the ambient air pollutant concentrations were analyzed using atmospheric dispersion modeling which uses, as a base, the results of the emissions inventory described above. The results of the dispersion analysis provide a basis to determine whether the resultant concentrations would exceed the NAAQS or the CAAQS. The dispersion modeling was conducted using the FAA's AEDT - which contains the USEPA-approved AERMOD dispersion model.

Consistent with the operational emissions inventories for the proposed project, as described in Section 3.2.3.1 above, the sources of emissions addressed in the dispersion analysis were aircraft, APUs, GSE, stationary sources, and motor vehicle traffic. The modeling estimated concentrations of CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Concentrations of O_3 were not estimated because, as stated previously, the complexity of O_3 formation and the health implications of O_3 warrants evaluation on a regional basis using a regional model and cannot be meaningfully addressed on a project-

[16] The user's guide for CalEEMod states that estimates of emissions from energy use result from electricity usage from lighting in parking lots and lighting, ventilation, and elevators in parking structures; CalEEMod User's Guide, Version 2016.3.2. November 2017. Available: http://caleemod.com/.

[17] County of San Diego, Land Use and Environment Group. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements - Air Quality. March 19, 2007. Available: https://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/AQ-Guidelines.pdf.

specific level. Ambient levels of Pb, sulfates, hydrogen sulfide (H_2S), and visibility-reducing PM were also not modeled as commercial airports are not considered to be a significant source of these pollutants.

For this analysis, the pollutants were computed for 67 receptors. Two types of receptors were evaluated: (1) a network of 40 receptors located along the perimeter of the Airport; and (2) 27 "sensitive" receptors in adjoining communities and other nearby areas. The sensitive receptors are comprised of parks, recreation areas, schools, and other facilities of common public access. Examples include the Spanish Landing Park to the south, Liberty Station NTC Park to the west, and Dewey Elementary School northwest of SDIA (see Section 2.1 of Appendix R-C1).

Meteorological data (e.g., wind speed and direction, temperature, etc.) for the years 2014 through 2018 were collected from SDIA (surface air data) and Miramar, CA (upper air data). Of the five years of meteorological data collected, 2016 was determined to represent worst-case conditions. Therefore, 2016 meteorological data conservatively was used for the atmospheric dispersion modeling (see Section 2.2 of Appendix R-C1).

The types, locations, and dimensions of existing airport features (e.g., Runway 9-27) were obtained from AEDT, while terminal gates, taxiways, and on/off-airport roadways were obtained from aerial imagery, street maps, and the SDIA Airport Layout Plan (ALP). For future years, the APD projects, locations, and operational characteristics were obtained from the site development concept plans, such as those presented in Chapter 2, Project Description.

To account for air quality impacts from non-airport sources (e.g., local and regional traffic, industry, marine vessel, and military facilities) in the San Diego area combined with air pollutant levels attributable to regional conditions, "background" air quality monitoring data from the SDAPCD were used. For the purposes of this analysis, these data represent air quality conditions in areas closest to SDIA. For each pollutant, these data were obtained from the closest air quality monitoring stations to SDIA (see Section 2.4 of Appendix R-C1).[18]

For determining the impacts of the proposed project to existing and future-year air quality conditions, the modeling results were evaluated for the buildout year of 2035. Using these data, the difference between existing (2018 baseline) conditions and future (2035) conditions were computed, and the increment of difference was then added to measured "background" concentrations to determine if the total concentrations would exceed the CAAQS or NAAQS.

The technical components of the emissions inventories and atmospheric dispersing modeling are further described in Appendix R-C1.

3.2.3.3 Air Quality Impact Analysis Models and Databases

As indicated above, the air quality impact analysis was conducted using appropriate models and databases from the USEPA, FAA, CARB, and the SDAPCD. These models and databases are listed in Table 3.2-1, including their source and application to the proposed project's air quality impacts analysis. In all cases, the most recent versions were used.

[18] U.S. Environmental Protection Agency. 2018. Available: https://www.epa.gov/outdoor-air-quality-data.

Table 3.2-1: Air Quality Impact Analysis Models and Databases

Models/Databases	Sources	Proposed Project Applications
Airport Construction Emissions Inventory Tool (ACEIT)	National Academies of Sciences (NAS), Transportation Research Board (TRB)	Construction requirements of on- and off/non-road construction vehicles, equipment, and other supporting activities.
Aviation Environmental Design Tool (AEDT)	Federal Aviation Administration (FAA)	Emission factors and operational data for aircraft engine and auxiliary power units (APU). Also used for atmospheric dispersion modeling.
Compilation of Emission Factors Database (AP-42)	U.S. Environmental Protection Agency (USEPA)	Emission factors for stationary sources and construction activities.
EMission FACtors (EMFAC2017)	California Air Resources Board (CARB)	California-based on-road motor vehicle emission factors.
OFFROAD 2017	CARB	California-based off/non-road motor vehicle, airport GSE, and construction equipment emission factors.
California Emissions Estimator Model (CalEEMod)	California Air Pollution Control Officers Association (CAPCOA)	Uniform platform for government agencies, land use planners, and environmental professionals to estimate potential emissions associated with both construction and operational use of land use projects.

Source: KB Environmental Sciences, Inc., 2019.

The technical aspects of these models and databases applied to the analysis of the proposed project are contained in Appendix R-C.

3.2.4 Regulatory Framework

Air quality is regulated by federal, state, and local laws. In addition to rules and standards contained in the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), air quality in the San Diego region is subject to the rules and regulations established by CARB and SDAPCD, with oversight provided by the USEPA, Region IX.

3.2.4.1 Federal

U.S. Environmental Protection Agency (USEPA)

The USEPA establishes the overall policies and regulations for protecting air quality nationwide. Through the federal CAA, this includes creating the NAAQS and setting standards for stationary (e.g., power plants, industrial boilers, incinerators) and mobile (e.g., motor vehicles, off/non-road vehicles, aircraft engines) emission sources of air pollutants. Section 233 of the CAA exclusively vests the authority to promulgate emission standards for aircraft and aircraft engines with the USEPA; states and other municipalities are preempted from adopting or enforcing any standard respecting aircraft engine emissions unless such standard is identical to the USEPA's standards.

Clean Air Act (CAA)

In addition to enabling the USEPA to set air quality policy and form regulations, the CAA also requires designation of areas nationwide according to their compliance of the NAAQS. Under this regulation, areas that meet the NAAQS are assigned Attainment status; those that do not meet the standards are designated as Nonattainment; and those in transition from Nonattainment to

Attainment are Maintenance. (Areas for which a designation has not been assigned are noted as Unclassified.) The current Attainment status of the San Diego air basin is presented below in Section 3.2.4.5.

State Implementation Plan (SIP)

In accordance with the federal CAA, areas that do not meet the NAAQS (Nonattainment and Attainment/Maintenance) are under the requirements of the SIP. The plan is comprised of strategies, emission reduction measures, and timeframes for achieving an Attainment status. Additional discussion of the SIP, as related to the proposed project, is provided below in Section 3.2.4.6.

National Ambient Air Quality Standards (NAAQS)

Set by the USEPA, the NAAQS address seven pollutants, called "criteria" pollutants. The standards represent ambient (i.e., outdoor) levels that are considered adequately protective of human health and the environment. The current NAAQS, as related to evaluation of the proposed project, are presented below in Section 3.2.4.4.

FAA Programs and Efforts to Reduce Air Pollutant Emissions

The FAA encourages and supports airports' efforts to reduce air pollutant emissions. The FAA provides Airport Improvement Program (AIP) grants to certain airports for Sustainability Master Plans or Airport Sustainability Plans to develop comprehensive sustainability planning documents, which help reduce air pollutant emissions.[19] The FAA also offers grant funding for air pollutant emission reductions through the Voluntary Airport Low Emissions (VALE) program[20] and the Airport Zero Emissions Vehicle and Infrastructure Pilot Program.[21]

SDCRAA has utilized all of the noted FAA programs, including: (1) use of VALE funds for installation of preconditioned air units (2011 and 2013) and gate electrification (2011); (2) a FAA grant (2016) for development of a formal Sustainability Management Plan, with specific focus on carbon neutrality, climate resilience, zero waste, biodiversity, and clean transportation (a draft of the Plan is available at www.san.org/green); and (3) a FAA zero-emission vehicle grant for electric buses that will be used for inter-terminal passenger transfers, if awarded.

3.2.4.2 State

California Air Resources Board (CARB)

CARB serves to enforce the federal CAA statewide. In addition, CARB has developed additional air quality regulations that only apply in California. This includes the CAAQS, which for some

[19] U.S. Department of Transportation, Federal Aviation Administration. Airport Sustainability. Available: https://www.faa.gov/airports/environmental/sustainability/.

[20] U.S. Department of Transportation, Federal Aviation Administration. Voluntary Airport Low Emissions Program (VALE). Available: https://www.faa.gov/airports/environmental/vale/.

[21] U.S. Department of Transportation, Federal Aviation Administration. Airport Zero Emissions Vehicle and Infrastructure Pilot Program. Available: https://www.faa.gov/airports/environmental/zero_emissions_vehicles/.

pollutants (e.g., particulate matter ($PM_{10/2.5}$), NO_2, and O_3), are stricter than the federal standards. The CAAQS also include air quality standards for sulfates, H_2S, and visibility-reducing particles.

With respect to on- and off/non-road motor vehicles and equipment, CARB sets lower exhaust emission standards, when compared to the national requirements. CARB is also involved in the development of the San Diego SIP (see Section 3.2.4.1 above).

Recently, CARB finalized and adopted a zero-emission airport shuttle regulation. The regulation requires the following:

- Beginning in January 1, 2022, airport shuttle fleet owners must electronically report fleet information to CARB.
- For in use fleets of airport shuttles, at least 33 percent must be zero emission vehicles (ZEVs) by December 31, 2027; at least 66 percent of the fleet must be ZEVs by December 31, 2031; and 100 percent of the fleet must be ZEVs by December 31, 2035.
- Model year 2026 and later heavy-duty zero-emission airport shuttles are required to be certified to Enhanced Electric and Fuel-Cell Vehicle Certification Procedures.

CARB estimates that this regulation will result in a cumulative emission reduction between the years 2020 and 2040 of 134 tons of NO_X and 2.5 tons of $PM_{2.5}$, respectively, while the reduction in carbon dioxide equivalent (greenhouse gas) emissions is estimated to be 500,000 metric tons.

California Ambient Air Quality Standards (CAAQS)

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. As discussed above, the CAAQS are set by CARB, and the CAAQS are identical to, or more stringent than, the NAAQS and also include sulfates, H_2S, and visibility-reducing particles (particles that contribute to "regional haze"). The current CAAQS, as related to evaluation of the proposed project, are presented below in Section 3.2.4.4.

3.2.4.3 Regional and Local

San Diego County Air Pollution Control District (SDAPCD)

Within San Diego County, SDAPCD is responsible for (1) administrating federal and state air quality standards; (2) permitting of stationary sources; and (3) monitoring ambient (i.e., outdoor) air quality – among other air quality regulations. In coordination with CARB and the San Diego Association of Governments (SANDAG), SDAPCD is also involved in the preparation and implementation of the Air Quality Management Plans (AQMPs) and the SIP for San Diego County.

San Diego Association of Governments (SANDAG)

SANDAG serves as the Metropolitan Planning Organization (MPO) with primary responsibility for the land-use and transportation components (e.g., surface, rail, and aviation) of the San Diego SIP. SANDAG ensures that future projects are consistent with area-wide growth forecasts and the Regional Transportation Plan (RTP). The most recent adopted growth forecasts for San Diego County are reflected in the SANDAG Regional Plan, also referred to as *San Diego Forward: The*

Regional Plan | 2015-2050, which was adopted by SANDAG in October 2015 and combines two of the region's existing planning documents: (1) the Regional Comprehensive Plan for the San Diego Region (RCP); and (2) the 2050 RTP/Sustainable Communities Strategy (RTP/SCS). The Regional Plan is the long-term planning framework for the San Diego region, intended to address the region's housing, economic, transportation, environmental, and overall quality-of-life needs. The Regional Plan focuses on the principles of sustainability and smart growth principles designed to strengthen the integration of land use and transportation developments. Included as part of the Regional Plan and the RTP/SCS, in Appendix U.6 and Technical Appendix 12, respectively, are the Regional Aviation Strategic Plan (RASP) and Airport Multimodal Accessibility Plan (AMAP).[22,23] The RASP for San Diego County was prepared by the SDCRAA to assess the long-range capabilities of all public-use airports in the county with the goal of improving the performance of the regional airport system.

California Senate Bill 10 of 2007 (SB 10) requires that airport multimodal planning in San Diego County be conducted and coordinated by SDCRAA and SANDAG. The main provisions of SB 10 are the development of the RASP (led by SDCRAA), and an AMAP, which was prepared by SANDAG in order to develop a multimodal strategy to improve transportation access to airports. Findings of the RASP and AMAP have been incorporated into the RTP and the Regional Plan.

The RASP includes forecasts of future aviation activity at airports within San Diego through the year 2030. The RASP projects total annual aircraft operations at SDIA to be 309,800 in 2030, at which time future operations projected in the ADP aviation forecast would not exceed that number of operations. The ADP aviation forecast projects approximately 269,370 annual aircraft operations in 2030 and approximately 290,175 annual aircraft operations in 2050. The AMAP anticipates future development of an Intermodal Transit Center (ITC) at the north end of SDIA with connections to trolley, commuter rail, and local and regional buses, along with the possibility of connecting to High Speed Rail if developed in the future, and related development of a North Side Terminal Complex that would include passenger processing facilities (e.g., ticketing, baggage claim, security screening, etc.).

Regional Air Quality Strategy (RAQS)

Prepared by the SDAPCD, this plan contains the measures, objectives, and schedule for addressing San Diego County's Nonattainment status for O_3. This includes meeting the state requirements and delineating the San Diego portion of the California SIP relative to addressing federal requirements. Additional discussion of the SIP and the RAQS, as related to the proposed project, is provided below in Section 3.2.4.6.

[22] San Diego Association of Governments. San Diego Forward: The Regional Plan | 2015-2050. October 2015. Appendix U6, Regional Aviation Strategic Plan and San Diego Airport Multimodal Accessibility Plan. Available: http://www.sdforward.com/pdfs/Final_PDFs/AppendixU6.pdf.

[23] San Diego Association of Governments. 2050 Regional Transportation Plan. October 2011. Technical Appendix 12, Regional Aviation Strategic Plan and Airport Multimodal Accessibility Plan. Available: http://www.sandag.org/uploads/2050RTP/F2050RTPTA12.pdf.

San Diego County Regional Airport Authority Plans and Programs

SDCRAA has several existing plans and programs in-place that serve to reduce SDIA's air pollutant emissions, including criteria pollutants that are addressed in this section and greenhouse gas (GHG) emissions that are addressed in Section 3.3. Summarized below are the: (1) Memorandum of Understanding (MOU) for Reduction of GHG; (2) SDCRAA Air Quality Management Plan; (3) Airport Sustainability Policy; (4) Employee Trip Reduction Programs; and (5) SDIA Transportation Infrastructure Investment Agreement. As illustrated by the discussion below, SDCRAA implements a suite of plans and programs that comprehensively pursue emission-reduction opportunities from SDIA-related sources and activities under their jurisdictional control.

Memorandum of Understanding (MOU) for Reduction of GHG[24]

In May 2008, subsequent to completion of the SDIA Airport Master Plan Final EIR, SDCRAA and the Attorney General of the State of California entered into an MOU calling for the implementation of specific measures to control GHG emissions associated with SDIA, including measures related to development of the airport improvements and operations at SDIA. The types of GHG control measures identified in the MOU, which also serve to reduce criteria air pollutants, addressed the following:

- Reduction in Aircraft On-the-Ground Energy Usage
  - Landside Power and Preconditioned Air at All New Gates
  - Retrofit Existing Gates with Landside Power and Preconditioned Air
  - Provision of Landside Power at All New Cargo Facilities and Hangars
  - Retrofit All Existing Cargo Facilities and Hangars with Landside Power
  - Cargo and General Aviation Aircraft Use of Landside Power
  - Aircraft Movements
- Reduction of Landside Energy Usage
  - Replacement of Existing Aircraft Tow/Pushback Tractors with Electric or Alternative Fuel Tractors
  - Replacement of Shuttles with Electric or Alternative Fuel Vehicles
- Use of Green Materials and Sustainable Design
  - Use of Cool Roofs (or Solar Panels) and Cool Pavements

[24] Memorandum of Understanding Between the Attorney General of the State of California and the San Diego County Regional Airport Authority Regarding the San Diego International Airport Master Plan, May 5, 2008. Available: http://www.san.org/Portals/0/Documents/Environmental/SDCRAA%20Attorney%20General%20MOU_2008.pdf.

  - Construct All New Facilities to Meet Leadership in Energy and Environmental Design (LEED) Certification (or equivalent), with a Target of Silver of Better

- Use of Green Construction Methods and Equipment
  - Use of Construction Equipment Running on Alternative Fuels or Particulate Traps
- Coordination and Encouragement of Tenants to Address GHG
  - Recycling
  - Sale of Unleaded Mogas (i.e., motor vehicle gas suitable for use in certain general aviation aircraft)
  - Reduction of Carbon Footprint

This MOU was one of the first of its kind for airports in California and the provisions of the MOU were integrated into the subsequent development of an Air Quality Management Plan for SDIA, which is described further below. The following summarizes SDCRAA's progress in implementing the abovementioned provisions of the MOU:

- Provide power (400 hertz [Hz]) and pre-conditioned air (PCA) at all gates
  - All gates provide 400 Hz ground power and PCA for aircraft use
  - SDCRAA is requiring ground power and PCA for any new projects
- Replace GSE with alternative fuel vehicles at end of useful equipment life
  - SDIA has 78 airside charging ports and about 200 airline-owned alternative-fuel GSE
  - SDCRAA is requiring airside charging ports for any new projects
- Replace shuttles with electric or alternative fuel vehicles
  - 100 percent of SDCRAA-controlled shuttles use alternative fuels (i.e., renewable natural gas, renewable diesel, propane)
  - Over 95 percent of taxis accessing SDIA use hybrid vehicles
- Achieve LEED Certification (at least Silver level) for all new development and renovation
  - At least LEED Gold has been achieved on all major construction projects
  - Approximately 85 percent of SDIA's electricity currently comes from renewables, including 5.5 megawatts from onsite solar panels and grid-delivered photovoltaic solar from the utility's green tariff program - EcoChoice
- Use green construction methods and equipment
  - Standard contract language includes use of low- and zero-emitting equipment

- Engage tenants in recycling and emissions reduction efforts
  - SDIA has a robust waste diversion program, including post-consumer food waste
  - 54 concessions at SDIA (approximately 72 percent of all concessions) are certified through SDCRAA's "SAN Green Concessions Program" sustainability program

SDCRAA Air Quality Management Plan (AQMP)[25]

The SDCRAA AQMP provides a comprehensive program for implementation of the types of GHG control measures recommended in the aforementioned MOU, as well as measures for the control and reduction of criteria pollutants. The SDCRAA AQMP complements several other environmental initiatives that SDCRAA has planned or are in-place for SDIA, such as the Airports Council International North America (ACI-NA) Sustainability Initiative and the SDCRAA Sustainability Policy. These environmental initiatives, along with various state and regional environmental initiatives, provide additional measures for the control and reduction of GHG, as well as other criteria pollutant emissions.

Section 3 of the SDCRAA AQMP evaluates potential measures pertaining to aircraft movement at SDIA and identifies four measures considered to have good potential for implementation at SDIA. The measures include: (1) Airfield and terminal area improvements to resolve "bottle-necks" and other airfield conflicts or delays; (2) Gate-hold procedures to control the time and frequency of aircraft departures, which are within the control/authority of FAA air and ground traffic control at SDIA; (3) Reduced APU usage through the installation of ground power and PCA; and (4) Single-engine taxiing, which is controlled by aircraft operators.

Section 4 of the AQMP provides an analysis of potential air pollutant emissions reduction opportunities. Such opportunities identified for the airside include provision of ground power and PCA at aircraft gates, construction of eGSE charging stations, development of a natural gas fueling station, and the previously mentioned aircraft movement measures. Landside emission reduction opportunities include conversion of SDCRAA fleet vehicles, airport shuttles, and taxis to electric and alternative fuels and increasing public transportation utilization by SDCRAA employees.

As indicated in the above status summary of compliance with the measures in the MOU, many of the measures identified in the SDCRAA AQMP for potential air pollutant emissions reduction opportunities have been largely, if not completely, implemented.

SDCRAA Sustainability Policy

The SDCRAA Board of Directors adopted a Sustainability Policy in 2008 (and amended in 2019) that is consistent with the SDCRAA's Mission Statement: to operate San Diego's air transportation gateways in a manner that promotes the region's prosperity and protects its quality of life. The Policy establishes SDCRAA's commitment to be a sustainable organization and a recognized leader for sustainable best practices in the San Diego region and the aviation industry. The policy endorses three pillars of sustainability (environmental, social, and economic) to guide and

[25] C&S Companies, KB Environmental, and Synergy Consultants, Inc. San Diego County Regional Airport Authority Air Quality Management Plan – Final Draft. November 2009. Available: http://www.san.org/Portals/0/Documents/Environmental/SAN%20AQMP%20Draft%20Final%20Report.pdf.

implement the Authority's practices. Further, SCRDAA commits to the following sustainable practices:[26]

1. Affirm commitment to regulatory compliance, continuous improvement, accountability and transparency in environmental, social and economic performance through the development of formal sustainability reports on a regular basis;

2. Actively participate in local and regional sustainability partnerships and strongly encourage and promote sustainable practices both in the aviation industry and the region;

3. Proactively address greenhouse gas emissions and the impacts of climate change through Airport operations, planning and development decisions;

4. Review and evaluate all new programs and projects in terms of addressing all three pillars of sustainability, in a balanced, holistic and measurable approach;

5. Analyze the life cycle operating costs and impacts of the Authority's facilities, operations and services, using a Total Cost of Ownership approach to determine project feasibility and economic sustainability;

6. Adopt the standards set forth by the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) and/or other green design and construction standards as guiding criteria for achieving sustainable design in the development and remodeling of Airport facilities;

7. Apply the three pillars of sustainability, LEED, and other green construction criteria as a significant factor when reviewing tenant development/redevelopment projects and provide incentives to encourage sustainable design features;

8. Develop language within all new leases, agreements and contracts that supports the Authority's sustainability initiatives;

9. Require the Authority's lessees and contractors to comply with the terms and conditions of their agreements pertaining to sustainability;

10. Establish a work environment that maximizes the Authority's employee assets and stimulates an atmosphere of innovation, productivity, pride, and a personal commitment to sustainability; and,

11. Take a leadership role in sustainability initiatives that strengthen the social well-being and community relationships with visitors, Airport stakeholders and the public the Authority serves.

[26] San Diego County Regional Airport Authority. San Diego County Regional Airport Authority Policies. Section 8.31 – Sustainability. Amended January 3, 2019. Available: https://www.san.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=12228&Command=Core_Download&language=en-US&PortalId=0&TabId=4990.

The above sustainability practices serve to directly and indirectly reduce criteria pollutants and GHG emissions associated with construction and operations at SDIA.

In conjunction with implementation of sustainability practices and measures, SDCRAA prepares an annual sustainability report, based on the internationally recognized criteria of the Global Reporting Initiative (GRI), with quantitative data that indicate the status of, and progress towards, sustainability at SDIA. Those reports are available at: http://sustain.san.org.

Employee Trip Reduction Programs

SDCRAA currently implements a number of programs for reducing trips associated with employee commutes. Such programs include, but are not limited to, provision of flexible/alternative work schedules (including telecommuting opportunities), support of on-site bikesharing or carsharing (available at the Rental Car Center), provision of transit and van/carpool subsidies (fifty percent of monthly transit pass costs paid by SDCRAA), and offering pre-tax deduction for transit or vanpool costs.

SDCRAA also actively participates in SANDAG's iCommute program, which provides services to commuters and employers to help reduce traffic congestion and greenhouse gas emissions. These services include a commute calculator, employee rideshare matching, and guaranteed ride home vouchers. The SDCRAA has been recognized by the iCommute program with a gold-level "Diamond Award" in recent years for meeting milestones in the development of commuter benefit programs for its employees.

SDIA Transportation Infrastructure Investment Agreement

In July 2019, SDCRAA entered into a 10-year agreement with various airlines operating at SDIA for the contribution of over a half-billion dollars for improvements related to transportation and transit systems serving the Airport. SDCRAA is currently working with its regional partners, including SANDAG, the City of San Diego, Port of San Diego, the Military, MTS, Caltrans and NCTD on potential transportation and transit connection improvements to the Airport. The agreement with the airlines will help provide key funding for those projects, if approved. While the specific improvements are being studied and not yet approved, the agreement ensures there will be substantial funding for those improvements should SDCRAA and partner agencies decide to go forward with them. Such improvements and potential funding allocations envisioned in the agreement include the following:

- The allocation of 350 million dollars for on- and potential off-airport public transportation projects in conjunction with regional partner agencies. The agreement allows SDCRAA to contribute up to this amount when third-parties (such as regional partner agencies) contribute funds for off-airport transportation and transit projects. This funding could also help pay for a new transit station on airport property that could connect to the regional system and for multimodal corridor improvements at the Airport.
- An additional 165 million dollars funded by SDCRAA and the partner airlines will be used for an inbound roadway on-airport that will connect North Harbor Drive at approximately Laurel Street.

As with all off-airport projects, SDCRAA will seek FAA approval for possible off-airport transportation and transit projects, similar to previous and current off-airport projects undertaken by SDCRAA to improve Harbor Drive and Sassafras Street.

Implementation of the above transportation and transit improvements, if approved, would serve to reduce vehicle-related air pollutant emissions, including criteria pollutants, as well as GHG emissions.

3.2.4.4 Ambient Air Quality Standards

As discussed above, the USEPA has established the NAAQS to protect public health (Primary Standards), the environment, and the quality of life (Secondary Standards) from the harmful effects of air pollution. Listed in Table 3.2-2, these standards have been set for the following "criteria" air pollutants: O_3, particulate matter ($PM_{10/2.5}$), CO, NO_2, SO_2, and Pb. The CAAQS are identical to, or more stringent than, the NAAQS and also include sulfates, H_2S, and visibility-reducing particles (particles that contribute to "regional haze").

Table 3.2-2: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards (CAAQS)		Federal Standards (NAAQS)		
		Standard	Form	Standard	Form	Primary/ Secondary[a]
Ozone (O_3)	1 hour	180 µg/m³	Not to be exceeded	—	--	--
	8-hour	137 µg/m³	Not to be exceeded	137 µg/m³	Annual 4th highest daily maximum, averaged over 3 years	Both
Particulate Matter (PM_{10})	24-hour	50 µg/m³	Not to be exceeded	150 µg/m³	Not to be exceeded more than once per year on average over 3 years	Both
	Annual	20 µg/m³	Not to be exceeded	—	--	--
Particulate Matter ($PM_{2.5}$)	24-hour	—	--	35 µg/m³	98th percentile, averaged over 3 years	Both
	Annual	12 µg/m³	Not to be exceeded	12 µg/m³	Annual mean, averaged over 3 years	Primary
				15 µg/m³	Annual mean, averaged over 3 years	Secondary
Carbon monoxide (CO)	1 hour	23,000 µg/m³	Not to be exceeded	40,000 µg/m³	Not to be exceeded more than once per year	Primary
	8-hour	10,000 µg/m³	Not to be exceeded	10,000 µg/m³	Not to be exceeded more than once per year	Primary
	1 hour	339 µg/m³	Not to be exceeded	189 µg/m³	98th percentile of 1-hour daily	Primary

Table 3.2-2: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards (CAAQS)		Federal Standards (NAAQS)		
		Standard	Form	Standard	Form	Primary/ Secondary[a]
Nitrogen dioxide (NO_2)					maximum, averaged over 3 years	
	Annual	57 µg/m³	Not to be exceeded	100 µg/m³	Annual mean	Both
Sulfur dioxide (SO_2)	1 hour	655 µg/m³	Not to be exceeded	196 µg/m³	99th percentile of 1-hour maximum, averaged over 3 years	Primary
	3-hour	—	--	1,300 µg/m³	Not to be exceeded more than once per year	Secondary
	24-hour	105 µg/m³	Not to be exceeded	—	--	—
Lead (Pb)	30-day average	1.5 µg/m³	Not to be equaled or exceeded	—	--	—
	Rolling 3-month average	—	--	0.15 µg/m³	Not to be exceeded	Both
Sulfates	24-hour	25 µg/m³	Not to be equaled or exceeded	--	--	--
Hydrogen Sulfide (H_2S)	1-hour	42 µg/m³	Not to be equaled or exceeded	--	--	--
Vinyl Chloride	24-hour	26 µg/m³	Not to be equaled or exceeded	--	--	--
Visibility Reducing Particles	--	Reduction of 0.23 per kilometer	Not to be exceeded	--	--	--

Source: CARB (https://www.arb.ca.gov/research/aaqs/aaqs2.pdf) and USEPA (https://www.epa.gov/criteria-air-pollutants/naaqs-table).
Notes:
-- Not applicable
µg/m³=micrograms per cubic meter
1. Primary standards provide public health protection. Secondary standards provide public welfare protection (e.g., protection against decreased visibility and damage to animals, crops, vegetation, and buildings).

3.2.4.5 Attainment/Nonattainment Status

As discussed above, areas are designated as Attainment, Nonattainment, or Maintenance based on air quality monitoring data and according to their compliance with the NAAQS and CAAQS. For the San Diego area (including the area surrounding SDIA), these designations are listed and discussed in Table 3.2-3.

As shown, the San Diego area is designated Attainment under the NAAQS for PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, and Pb and the area is currently classified as Nonattainment/Moderate for the year 2008 and 2015 O_3 NAAQS. Notably, because San Diego County failed to attain the year 2008 NAAQS for O_3 by

July 20, 2018, effective September 23, 2019, the USEPA is re-designating San Diego County as Nonattainment/Serious for the 2008 O_3 NAAQS.

With respect to the CAAQS, the area is designated Attainment for CO, NO_2, SO_2, Pb, and sulfates, and designated as Nonattainment for O_3 (both the 2008 and 2015 standards), PM_{10}, and $PM_{2.5}$.

Table 3.2-3: Attainment/Nonattainment Designations for Proposed Project Area

Pollutants	Designations		Comments
	CAAQS	NAAQS	
Ozone (O_3)	Nonattainment	Nonattainment (Moderate)[1]	Designations based on violations of the NAAQS and CAAQS. Moderate signifies the lowest (i.e., least strict) level of Nonattainment of the NAAQS. O_3 is a regional pollutant and generated from numerous sources of emissions throughout the Nonattainment area.
Particulate matter (PM_{10})	Nonattainment	Attainment	Meets the NAAQS but not the CAAQS, which is lower.
Particulate Matter ($PM_{2.5}$)	Nonattainment	Attainment	Meets the NAAQS but not the CAAQS, which is lower.
Carbon monoxide (CO)	Attainment	Attainment	Meets the CAAQS and NAAQS.
Nitrogen dioxide (NO_2)	Attainment	Attainment	Meets the CAAQS and NAAQS.
Sulfur dioxide (SO_2)	Attainment	Attainment	Meets the CAAQS and NAAQS.
Lead (Pb)	Attainment	Attainment	Meets the CAAQS and NAAQS.
Sulfates	Attainment	--	No NAAQS for this pollutant.
Hydrogen Sulfide	Unclassified	--	There are no air quality data collected for this pollutant in the area and there are no NAAQS.
Visibility Reducing Particles	Unclassified	--	There are no air quality data collected for this pollutant in the area and there are no NAAQS.

Sources: SDAPCD Attainment Status, www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning/attainment-status.html, 2019; U.S. Environmental Protection Agency. Nonattainment Area for Criteria Pollutants (Green Book). Available: https://www.epa.gov/green-book.

Note:

1. Because the area failed to attain the federal O_3 standard by July 20, 2018, the area is being re-designated to Nonattainment/Serious effective September 23, 2019.

3.2.4.6 State Implementation Plan and Regional Air Quality Strategy

In accordance with the federal CAA for nonattainment and attainment/maintenance areas, San Diego County is included in the SIP for O_3 and CO.[27] SDIA air pollutant emissions are also accounted for in the SIP and RAQS.[28,29]

As discussed above, CARB and SDAPCD share the responsibility of developing the SIP. SDAPCD also prepares the RAQS. Table 3.2-4 lists the SIP and RAQS that are relevant to this analysis.

Table 3.2-4: Status of Regional Air Quality Strategy (RAQS) and State Implementation Plan (SIP)

RAQS or SIP	Pollutant(s)	Document Title	Comments
Regional Air Quality Strategy (RAQS)	Ozone and Particulate Matter	2016 Revision to the Regional Air Quality Strategy for San Diego County	Originally published in 1991. Measures to reduce PM were introduced in 2005. Last revised in 2016, this document provides emission trends and projections for O_3 precursors for the years 2000 through 2035.
State Implementation Plan (SIP)	Ozone	2008 Eight-Hour Ozone Attainment Plan for San Diego County (December 2016)[a]	This SIP identifies control measures and associated emissions reduction as necessary to demonstrate attainment of the federal O_3 standard by July 20, 2018. It is anticipated that the SIP will be revised to address the area's future re-designation with respect to this pollutant.
	Carbon Monoxide	2004 Revision to the California State Implementation Plan for Carbon Monoxide	Originally published in 1996, emission inventories and on-road vehicle (e.g., motor vehicle) emission budgets were last updated in 2004.

Source: CARB San Diego County Air Quality Management Plans. Available: https://www.arb.ca.gov/planning/sip/planarea/sansip.htm.
Note:
1. The year 2008 refers to the O_3 standard that was promulgated by the USEPA.

3.2.5 Environmental Setting

This section provides information and data pertaining to air quality in the San Diego area (including the area surrounding SDIA).

3.2.5.1 Air Quality Monitoring Data

SDAPCD collects air quality monitoring data at several monitoring stations located throughout San Diego County. A compilation of the most recent data available (years 2016 to 2018) from this

[27] San Diego County Air Pollution Control District. 2008 Eight-Hour Ozone Attainment Plan for San Diego County. Final - December 2016. Available: https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf.; California Air Resources Board, 2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas, July 22, 2004. Available: https://www.arb.ca.gov/planning/sip/co/final_2004_co_plan_update.pdf.

[28] San Diego County Air Pollution Control District. 2008 Eight-Hour Ozone Attainment Plan for San Diego County. Final - December 2016. Available: https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf; California Air Resources Board, 2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas, July 22, 2004. Available: https://www.arb.ca.gov/planning/sip/co/final_2004_co_plan_update.pdf.

[29] San Diego County Air Pollution Control District. 2008 Eight-Hour Ozone Attainment Plan for San Diego County. Final - December 2016. Available: https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf.

network is provided in Table 3.2-5. The distance and direction of the monitoring stations from SDIA are identified and compliance with the CAAQS and NAAQS is also indicated.

Table 3.2-5: San Diego Air Quality Monitoring Data (µg/m³)

			Applicable to the CAAQS			Applicable to the NAAQS			
Pollutant	**Averaging Time**	**Dist. and Dir. from SDIA (Miles)**	**Measured Levels[1]**	**Standard**	**Above Standard (Yes/No)**	**Measured Levels[1]**	**Standard (NAAQS)**	**Primary/ Secondary[2]**	**Above Standard (Yes/No)**
Ozone (O3)	1 hour[3]	10 SE	172	180	No	--	--	--	--
	8-hour	10 SE	145	137	No	120	137	Both	No
Particulate Matter (PM10)	24-hour	10 SE	59	50	Yes	40	150	Both	No
	Annual	10 SE	20	20	No	--	--	--	--
Particulate Matter (PM2.5)	24-hour	10 SE	--	--	--	25	35	Both	No
	Annual	10 SE	10	12	No	9	12	Primary	No
							15	Secondary	No
Carbon Monoxide (CO)	1 hour	14 NE	1,834	23,000	No	1,834	40,000	Primary	No
	8-hour	14 NE	1,604	10,000	No	1,604	10,000	Primary	No
Nitrogen Dioxide (NO2)	1 hour	10 SE	107	339	No	85	189	Primary	No
	Annual	10 SE	24	57	No	17	100	Both	No
Sulfur Dioxide (SO2)	1 hour	14 NE	9	655	No	3	196	Primary	No
	3-hour	14 NE	--	--	--	3	1,300	Secondary	No
	24-hour	14 NE	1	105	No	--	--	--	--
Lead (Pb)	30-day[3]	14 NE	0.09	1.5	No	--	--	--	--
	3-month	14 NE	--	--	--	0.01	0.15	Both	No

Source: USEPA AirData and CARB Air Quality Data Statistics (https://www.arb.ca.gov/adam/index.html) extracted July 2019.
Notes:
-- Not applicable
See Table 3.2-3 for pollutant abbreviation definitions.
1. For standards that are not to be exceeded or not to be exceeded more than once per year, the reported values represent the highest measured level over the period of measurement (i.e., 2016 through 2018).
2. Primary standards provide public health protection. Secondary standards provide public welfare protection (e.g., protection against decreased visibility and damage to animals, crops, vegetation, and buildings).
3. Reported CAAQS based level is the maximum daily level measured for the period 2015 through 2017 (2018 data was not available).

The air quality monitoring station located closest to SDIA is approximately 10 miles southeast in Chula Vista. Data for O_3, PM, and NO_2 are recorded at this station. The next closest monitoring station is located in El Cajon, approximately 14 miles northeast of SDIA. Data for CO, SO_2, and Pb are recorded at this station.

Based upon these air quality data:

- Within the period that was reviewed (i.e., 2016 through 2018), measured air pollutants were below the NAAQS for all of the criteria pollutants at the air quality monitoring stations closest to SDIA.
- With the exception of PM10, air pollutants were also below the CAAQS within the review period.

3.2.5.2 Existing Emissions and Air Quality at SDIA

This section provides an overview of air quality associated with SDIA under current (i.e., 2018 baseline) conditions. The information and data provided below include: (1) airport sources and types of emissions; and (2) total emission estimates. Existing ambient air quality concentrations at SDIA are represented by the San Diego ambient air quality monitoring data described above in Section 3.2.5.1 and quantified in Table 3.2-5.

3.2.5.2.1 Sources and Types of Emissions

The main sources of air pollutant emissions at SDIA are grouped into five primary categories: (1) aircraft (including commercial air carriers, regional jets, and general aviation aircraft); (2) APUs; (3) GSE; (4) motor vehicles (including cars, trucks, vans, buses); and (5) stationary sources.

The types of air pollutant emissions are mostly those that are generated by the burning of fossil fuels and include CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. Organic gases, such as VOCs, are also emitted.

These sources and types of emissions at SDIA are listed and described in Table 3.2-6. It should be noted that the types of emissions identified below are consistent with other commercial airports similar in size and operational characters to SDIA.

Table 3.2-6: Airport-Related Sources of Air Pollutant and Pollutant Precursor Emissions

Source	Emission Types	Characteristics
Aircraft	VOC, NO_X, PM, CO, SO_X, Pb	Exhaust products of fuel combustion that vary depending on aircraft engine type (e.g., turbo-jet, turbo-prop, etc.), fuel type (e.g., Jet-A, AvGas), number of engines, power setting (e.g., startup, taxi/idle, take-off), and period of operation.
Auxiliary Power Units (APUs)	VOC, NO_X, PM, CO, SO_X	Exhaust products of fuel combustion from on-board power units to provide electricity to an aircraft when parked and the main engines are off.
Ground Support Equipment (GSE)	VOC, NO_X, PM, CO, SO_X	Exhaust products of fuel combustion from equipment and vehicles to service aircraft. These include baggage tugs, tow tractors, belt loaders, and other portable equipment.
Motor Vehicles	VOC, NO_X, PM, CO	Exhaust products of fuel combustion from motor vehicles using airport parking facilities and on- and off-airport roadways. These included motor vehicles, taxis, limousine, vans, rental cars, buses, and shuttles, as well as airport-owned vehicles. Emissions vary depending on vehicle type (e.g., gasoline, diesel, etc.), distance traveled, and operating speed.
Stationary Sources	VOC, NO_X, PM, CO, SO_X	Exhaust products of fossil fuel combustion. Emissions are generally well controlled with operational techniques and post-burn collection methods. Sources include boilers, emergency generators, paint and surface coating operations, etc.

Source: KB Environmental Sciences, Inc., 2019.
Note:
1. Although lead (Pb) is a criteria pollutant, it was not evaluated because the proposed project would not use any fuels or coatings with lead additives, nor would the proposed project result in a change in the number or operational modes for the SDIA aircraft that are powered by fuel containing Pb (i.e., AvGas); therefore, the proposed project would have no impacts on Pb levels in the San Diego air basin.

3.2.5.3 Existing (2018 Baseline) Conditions Emissions Inventory

As discussed above in Section 3.2.3, quantifying the types and amounts of air pollutant emissions associated with SDIA under existing (2018 baseline) conditions was accomplished by preparing an emissions inventory. The FAA's *AEDT*, and CARB's *EMFAC2017* and *OFFROAD 2017* models were used. SDIA operational data (e.g., activity level, aircraft types, taxi-in taxi-out times) and roadway traffic (on- and off-airport) for 2018 were also used.

Sources of emissions were aircraft, APUs, GSE, stationary sources, and on- and off-site motor vehicle traffic. The pollutants were CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. O_3 was not included as this pollutant occurs regionally and is not emitted by airport emission sources alone. For this reason, VOC emissions (combined with NO_X) were computed as a precursor to O_3 formation.

The results of the existing (2018 baseline) conditions emissions inventory are provided in Table 3.2-7. The data are reported in tons per year and pounds per day arranged by emission source (e.g., aircraft, APU, GSE, etc.) and pollutant (e.g., VOC, NO_X, etc.). Backup information and technical data for the existing (2018 baseline) emissions inventory are provided in Appendix R-C1.

Table 3.2-7: Existing (Year 2018) Emissions Inventory

Sources	Pollutants											
	Tons/Year						Pounds/Day					
	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
Aircraft	101	914	6	6	929	92	551	5,011	35	35	5,090	504
APUs	<1	6	1	1	4	1	2	34	3	3	23	4
GSE	30	92	4	4	751	<1	164	506	22	20	4,115	1
Stationary Sources	4	17	5	2	11	1	19	91	29	9	58	7
Motor Vehicles	6	27	8	1	191	1	36	145	45	7	1,047	3
Energy Use	<1	2	<1	<1	1	<1	1	9	1	1	8	<1
Totals	**141**	**1,059**	**25**	**14**	**1,887**	**95**	**773**	**5,797**	**135**	**75**	**10,341**	**519**

Source: KB Environmental Sciences, Inc., 2019.
Note: Totals reflect rounding.

As shown, total amounts of CO are emitted in the greatest quantities, followed by NO_X. Aircraft are the largest source of these two pollutants. VOCs and SO_X are emitted in the next largest amounts, followed by PM_{10} and $PM_{2.5}$. Aircraft are the largest contributors of VOCs, SO_X and $PM_{2.5}$; motor vehicles are the largest source of PM_{10}. For SDIA, these results are comparable to prior emission inventories and for other airports of similar size and operating conditions.[30]

[30] Based on the professional experience and opinion of the firm, KB Environmental Sciences, Inc., that completed the air quality emissions inventory for this section, and as also reflected in the following studies: Environmental Impact Report, Airport Master Plan, San Diego International Airport. April 2008; Baltimore/Washington International Thurgood Marshall Airport Air Quality & GHG Management Plan. August 2017; T.F. Green Airport 2017 Air Emissions Inventory. March 2018; and Nashville International Airport 2015 Annual Air Emissions Inventories. April 2016.

3.2.6 Thresholds of Significance

For this EIR, the SDCRAA has based the air quality thresholds of significance on a combination of the Air Quality issues identified in Section III. in Appendix G of the State CEQA Guidelines and the Air Quality section of the County of San Diego's *Guidelines for Determining Significance and Report Format and Content Requirements*.[31] The criteria and thresholds used in evaluation of the proposed project are presented below.

The proposed project would result in significant impacts related to air quality if it would:

Impact 3.2-1 Conflict with or obstruct implementation of the Regional Air Quality Strategy (RAQS) for San Diego County or applicable portions of a SIP.

Impact 3.2-2 Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Impact 3.2-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment under an applicable federal or state ambient air quality standard (PM_{10}, $PM_{2.5}$, or exceed quantitative thresholds for O_3 precursors, NO_X, and VOCs).

Impact 3.2-4 Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations.

Impact 3.2-5 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

With respect to Impact 3.2-2, the County of San Diego uses screening-level thresholds to evaluate whether a proposed project's emissions would violate any air quality standard or contribute substantially to an existing or projected air quality violation. Table 3.2-8 delineates the screening-level thresholds for VOCs, NO_X, PM_{10}, $PM_{2.5}$, CO, and SO_X; these thresholds will be applied in evaluating the proposed project's impacts relative to Impact 3.2-2. In accordance with San Diego County guidelines, in the event that project emissions of NO_X, SO_X, or CO exceed the thresholds, dispersion modeling is required for NO_2, SO_2, and CO to demonstrate that the proposed project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS.

[31] County of San Diego, Land Use and Environment Group. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Air Quality. March 19, 2007. Available: https://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/AQ-Guidelines.pdf.

Table 3.2-8: Air Quality Screening-Level Thresholds

Pollutants	Total Annual Emissions (tons/year)	Total Daily Emissions (pounds/day)
VOCs	13.7	75
NO_X	40	250
PM_{10}	15	100
$PM_{2.5}$	10	55
CO	100	550
SO_X	40	250

Source: County of San Diego, Land Use and Environment Group. County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Air Quality. March 19, 2007. Available: https://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/AQ-Guidelines.pdf.

3.2.7 Project Impacts

3.2.7.1 Impact 3.2-1

Summary Conclusion for Impact 3.2-1: Implementation of the proposed project would not conflict with or obstruct implementation of the Regional Air Quality Strategy (RAQS) for San Diego County or applicable portions of a SIP. As such, and as further described below, this would be a *less than significant impact*.

As indicated earlier in Section 3.2.3, the San Diego RAQS outlines the SDAPCD's plans, control measures, objectives, and schedule for attainment of state and federal air quality standards. The RAQS relies on information from SANDAG, including projected growth in the County, and from CARB regarding emissions from mobile, area, and all other sources in order to project future emissions and determine the strategies necessary for the reduction of those emissions. As indicated earlier in Section 3.2.4.3 and further described below, the future operational emissions of VOCs and NO_X (i.e., ozone precursors) at SDIA projected to occur with operation of the proposed project in 2030 and 2040 are less than the VOCs and NO_X emissions estimates in the currently adopted Ozone Attainment Plan for both years. These emissions are accounted for in the RASP, which is part of the RTP/SCS for San Diego County.[32]

As indicated in Section 3.2.4.6, existing and projected future emissions at SDIA are accounted for in the SIP and the RAQS. The primary focus in those documents is on attainment of the NAAQS eight-hour O_3 standard for San Diego County, as presented in the 2008 Eight-Hour Ozone Attainment Plan for San Diego County.[33] Section 2.1.3.3 of the Attainment Plan addresses SDIA growth for General Conformity and indicates that an emission inventory of criteria pollutant emissions at SDIA is accounted for in the Attainment Plan and includes future growth emissions associated with aviation and non-aviation sources estimated for 2020, 2030, and 2040. The currently adopted

[32] Although SO_X emissions associated with project operations in 2030 are 0.2 percent greater that the SO_X emissions assumed for SDIA in the Ozone Attainment Plan in 2030, as indicated in Table 3.2-9, SO_X is not an ozone precursor. As such, that 0.2 percent emissions exceedance in 2030 would not conflict with or obstruct implementation of the Ozone Attainment Plan. Additionally, San Diego County is currently in attainment with state and federal standards for SO_2 (SO_X); therefore, the SDIA future operational emissions of SO_X would not conflict with any applicable attainment plan.

[33] San Diego County Air Pollution Control District. 2008 Eight-Hour Ozone Attainment Plan for San Diego County. Final - December 2016. Available: https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf.

Ozone Attainment Plan indicates that the growth allowance associated with these emissions projections can be accommodated without jeopardizing attainment of the 2008 eight-hour O_3 NAAQS. More specifically, the emissions estimates included in the Attainment Plan that are related to SDIA are based on a comprehensive emissions inventory of airport-related sources at SDIA. That inventory is included as Attachment C of the Attainment Plan. Table 3.2-9 indicates the total projected airport emissions for SDIA in 2030 and 2040 that are included in the Attainment Plan, and the total emissions for SDIA projected to occur with operation of the proposed project in 2030 and in 2040.

Table 3.2-9: SDIA Future Emissions Included in Attainment Plan Compared to Proposed Project Emissions

Years	Pollutants (tons)					
	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
8-Hour Ozone Attainment Plan (Attachment C, Table 9-9)						
2030	275.1	1,653.1	58.1	44.1	1,290.4	127.3
2040	291.6	1,868.9	73.3	56.9	1,404.2	151.0
Proposed Project[1]						
2030	165.0	1,509.2	26.0	11.8	1,261.8	127.6
2040	174.1	1,686.8	27.0	12.4	1,398.4	144.1

Source: KB Environmental Sciences, Inc., 2019.

Note:

1. Year 2030 emissions with the proposed project are also presented in Table 3.2-11. Year 2040 emissions were interpolated from the emission inventory results in Table 3.2-11 for the years 2035 and 2050. Notably, neither the emissions in the Ozone Attainment Plan nor the emissions in Table 3.2-9 for PM10, PM2.5, and CO reflect emissions resulting from the operation of GSE or construction activities.

It should be noted that since San Diego County failed to attain the federal O_3 standard by the planned attainment date of July 20, 2018, it is expected that the area will be re-designated Nonattainment/Serious in the near term and a new Ozone Attainment Plan for San Diego County will be prepared. Until that plan is completed and is approved by the USEPA, the 2008 Eight-Hour Ozone Attainment Plan is still applicable.

As indicated in Table 3.2-9, the future operational emissions of ozone precursor pollutants, specifically VOCs and NO_X, at SDIA projected to occur with operation of the proposed project in 2030 and 2040 are less than the emissions estimates for those pollutants (i.e., VOCs and NO_X) in the currently adopted Ozone Attainment Plan for both years.

Based on the above, it is concluded that implementation of the proposed project would not conflict with or obstruct implementation of the current RAQS for San Diego County or applicable portions of the current SIP; therefore, it would be a ***less than significant impact***.

3.2.7.1.1 Mitigation Measures

No mitigation is required.

3.2.7.1.2 Significance of Impact After Mitigation

As indicated above, no mitigation is needed relative to this impact. The proposed project would result in a ***less than significant impact*** for construction and operations.

3.2.7.2 Impact 3.2-2

Summary Conclusion for Impact 3.2-2: Implementation of the proposed project would exceed the screening-level emissions thresholds for certain criteria pollutants, which would be a *significant and unavoidable impact*, as further described below.

With the exception of PM_{10}, concentrations of criteria pollutants would not exceed state or federal standards and, therefore, would result in a *less than significant impact*, relative to those pollutants. However, existing background concentrations of PM_{10} currently exceed state standards and the increase in PM_{10} concentrations associated with project operations would increase that existing exceedance. As such, the project's concentration-based impact associated with PM_{10} would be a *significant and unavoidable impact*, as further described below.

3.2.7.2.1 Construction

Air Pollutant Emissions

Air pollutant emissions associated with airport construction activities typically differ by types and amounts depending on the project type (e.g., taxiway, terminal building), duration (e.g., days), construction equipment (e.g., graders, haul trucks), and activity (e.g., demolition, paving). The emissions are generated primarily from the exhaust of construction equipment and vehicles traveling to, from, and moving about the project site. Fugitive emissions (e.g., dust) occur during site preparation, material storage and handling, moving vehicles, erodible material, and evaporative substances.

Construction equipment and vehicles typically comprise on-road vehicles (i.e., licensed and allowed on public roadways) and non-road equipment (i.e., unlicensed and restricted from public roadways).

The construction emissions inventory was prepared for the proposed project to include completion of each of the major subphase (i.e., 1a in 2024, 1b in 2026, 2a in 2030, and 2b/buildout in 2035).

Table 3.2-10 presents the proposed project's construction air pollutant emissions inventory in units of tons per year and pounds by day. It should be noted that the construction emissions estimates presented below are conservative in that they do not take into account emissions reductions associated with the use of alternative-fuel and low-emission construction equipment, which is required in SDCRAA construction contracts.

Table 3.2-10: Proposed Project Construction Emissions Inventory

Project Phase	Years	Pollutants (tons/year)						Pollutants (pounds/day)					
		VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
1a	2021	2	16	5	1	12	<1	13	88	25	5	68	<1
1a	2022	2	12	4	1	11	<1	12	68	24	4	63	<1
1a	2023	2	11	4	1	11	<1	11	58	24	4	61	<1
1a/1b	2024	3	17	10	1	17	<1	16	91	57	8	95	<1
1b	2025	1	6	6	1	6	<1	5	32	33	4	35	<1
1b	2026	1	6	6	1	6	<1	5	31	33	4	34	<1
2a	2027	1	7	3	<1	13	<1	4	41	16	2	72	<1
2a	2028	1	7	3	<1	13	<1	4	40	16	2	72	<1
2a	2029	1	7	3	<1	13	<1	4	39	16	2	71	<1
2a	2030	1	7	3	<1	13	<1	4	39	16	2	71	<1
2b	2031	<1	2	2	<1	2	<1	2	9	13	2	11	<1
2b	2032	<1	2	2	<1	2	<1	2	9	13	2	11	<1
2b	2033	<1	2	2	<1	2	<1	2	9	13	2	11	<1
2b	2034	<1	2	2	<1	2	<1	2	8	13	2	11	<1
2b	2035	<1	1	2	<1	2	<1	2	8	13	2	11	<1
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Any Exceedance of Threshold?		***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***	***No***

Source: KB Environmental Sciences, Inc., 2019.

As shown in Table 3.2-10, total annual construction emissions vary by year and subphase. This change is due primarily to the project phasing and the associated types and timing of the proposed project improvements. For example, construction of the taxiways improvements and larger terminal development (i.e., replacement of T1) are planned in the early stages of the overall construction program, and the more limited terminal improvements (i.e., T2-West modification [Stinger] and T2-East replacement with a linear concourse) occur in the latter portion of the overall construction schedule. The types of construction vehicles, equipment, and activity levels also vary over time resulting in changes in the emissions inventory. Additional information regarding the data assumptions and model inputs that were used to derive the construction emissions inventories is provided in Appendix R-C1 (please see the Section 1.5 entitled "Construction").

The differences in total construction emissions among the types of pollutants are mainly attributable to the types of equipment and vehicles used. For example, large engine, diesel-fueled graders and haul trucks are characterized by high NO_X and PM_{10} emissions compared to the emissions from the smaller gasoline engines that are in on-road pick-up trucks.

3.2.7.2.2 Operations

Air Pollutant Emissions

The results of the operational emissions inventory for the proposed project at completion of each subphase are provided in Table 3.2-11. For the purpose of comparing the estimated level of total Airport-related emissions with the proposed project to the air quality screening-level thresholds, the construction emissions that are estimated to occur in each subphase (presented in Table 3.2-10) are also provided in Table 3.2-11. Total emissions with the proposed project are also compared to the existing (2018) SDIA emission estimates and the ton per year and pound per day thresholds of significance (Table 3.2-8).

Table 3.2-11: Proposed Project Emissions Inventory

Phase/ Year	Sources	Pollutants											
		Tons/Year						Pounds/Day					
		VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
1a/ 2024	Aircraft	111	1,104	7	7	992	105	609	6,049	41	41	5,438	577
	APUs	<1	7	1	1	4	1	2	40	4	4	22	5
	GSE	29	81	2	2	867	<1	157	443	12	11	4,748	1
	Stationary Sources	4	17	6	2	11	1	21	93	35	9	60	7
	Motor Vehicles	2	14	10	1	114	1	11	78	52	7	624	3
	Energy Use	<1	1	<1	<1	1	<1	1	5	<1	<1	4	<1
	Construction	3	17	10	1	17	<1	16	91	57	8	95	<1
	Totals	**149**	**1,241**	**37**	**15**	**2,006**	**108**	**817**	**6,800**	**201**	**80**	**10,993**	**592**
Existing 2018 Baseline Emissions		141	1,058	25	14	1,887	95	773	5,797	135	75	10,341	519
Difference from Existing 2018 Baseline		8	183	12	1	119	13	43	1,002	66	5	652	74
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Exceeds Threshold?		***No***	***Yes***	***No***	***No***	***Yes***	***No***	***No***	***Yes***	***No***	***No***	***Yes***	***No***
1b/ 2026	Aircraft	120	1,186	8	8	1,045	111	655	6,501	44	44	5,728	610
	APUs	<1	8	1	1	4	1	2	42	4	4	20	5
	GSE	29	79	2	2	922	<1	157	432	13	11	5,051	1
	Stationary Sources	4	17	6	2	11	1	21	93	35	9	60	7
	Motor Vehicles	2	17	11	1	111	1	10	89	58	6	599	3
	Energy Use	<1	1	<1	<1	1	<1	1	7	<1	1	6	<1
	Construction	1	6	6	1	6	<1	5	31	33	4	34	<1
	Totals	**155**	**1,314**	**34**	**15**	**2,101**	**114**	**851**	**7,196**	**187**	**80**	**11,499**	**626**
Existing 2018 Baseline Emissions		141	1,058	25	14	1,887	95	773	5,797	135	75	10,341	519
Difference from Existing 2018 Baseline		14	256	9	1	214	19	78	1,399	52	5	1,158	107
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Exceeds Threshold?		***Yes***	***Yes***	***No***	***No***	***Yes***	***No***	***Yes***	***Yes***	***No***	***No***	***Yes***	***No***

Table 3.2-11: Proposed Project Emissions Inventory

Phase/ Year	Sources	Pollutants											
		Tons/Year						Pounds/Day					
		VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
2a/ 2030	Aircraft	132	1,404	8	8	1,146	125	724	7,691	45	45	6,280	684
	APUs	<1	8	1	1	4	1	2	42	4	4	21	5
	GSE	26	61	1	1	947	<1	145	336	7	6	5,188	1
	Stationary Sources	4	17	6	2	11	1	21	93	35	9	60	7
	Motor Vehicles	1	13	11	1	103	1	7	69	61	6	564	3
	Energy Use	<1	2	<1	<1	2	<1	<1	12	1	1	10	<1
	Construction	1	7	3	<1	13	<1	4	39	16	2	71	<1
	Totals	**165**	**1,512**	**31**	**13**	**2,225**	**128**	**905**	**8,283**	**169**	**73**	**12,194**	**700**
Existing 2018 Baseline Emissions		141	1,058	25	14	1,887	95	773	5,797	135	75	10,341	519
Difference from Existing 2018 Baseline		24	454	6	<1	338	33	131	2,486	34	-2	1,853	181
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Exceeds Threshold?		***Yes***	***Yes***	***No***	***No***	***Yes***	***No***	***Yes***	***Yes***	***No***	***No***	***Yes***	***No***
2b/ 2035	Aircraft	149	1,660	9	9	1,386	149	819	9,098	50	50	7,597	818
	APUs	<1	9	1	1	5	1	2	48	5	5	26	6
	GSE	26	57	1	1	1,011	<1	144	311	8	7	5,537	1
	Stationary Sources	4	17	6	2	11	1	22	93	35	9	60	7
	Motor Vehicles	1	7	11	1	89	1	4	40	58	5	488	3
	Energy Use	<1	2	<1	<1	2	<1	<1	13	1	1	11	<1
	Construction	<1	1	2	<1	2	<1	2	8	13	2	11	<1
	Totals	**181**	**1,754**	**31**	**14**	**2,506**	**152**	**994**	**9,612**	**170**	**78**	**13,730**	**835**
Existing 2018 Baseline Emissions		141	1,058	25	14	1,887	95	773	5,797	135	75	10,341	519
Difference from Existing 2018 Baseline		40	696	6	1	618	58	221	3,815	35	4	3,389	316
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Exceeds Threshold?		***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***	***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***
2050	Aircraft	157	1,795	9	9	1,427	158	861	9,833	52	52	7,822	864
	APUs	<1	10	1	1	5	1	2	53	5	5	28	7
	GSE	21	34	1	1	497	<1	114	187	4	3	2,722	1
	Stationary Sources	4	17	6	2	11	1	22	93	35	9	60	7
	Motor Vehicles	<1	4	11	1	86	<1	2	23	59	4	473	3
	Energy Use	<1	2	<1	<1	2	<1	1	13	1	1	11	<1

Table 3.2-11: Proposed Project Emissions Inventory

Phase/ Year	Sources	Pollutants											
		Tons/Year						Pounds/Day					
		VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
	Totals	**183**	**1,862**	**28**	**14**	**2,029**	**161**	**1,004**	**10,203**	**155**	**74**	**11,116**	**881**
Existing 2018 Baseline Emissions		141	1,058	25	14	1,887	95	773	5,797	135	75	10,341	519
Difference from Existing 2018 Baseline		42	804	4	<1	141	66	231	4,406	20	<1	775	362
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Exceeds Threshold?		***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***	***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***

Source: KB Environmental Sciences, Inc., 2019.
Note: Totals may reflect rounding.

As shown in Table 3.2-11, NO_X and CO emissions are emitted in the largest quantities compared to the other criteria pollutants. This result is attributable to the emission characteristics of aircraft engines under high power modes (e.g., take-off, climbout) for NO_X and under low power modes (e.g., taxi-in, taxi-out, idling) for CO. VOCs are produced in the next greatest amount followed by SO_X. Emissions of PM_{10} and $PM_{2.5}$ are generated in the least amounts overall.

As also shown in Table 3.2-11, for operations at completion of Phase 1a (2024) emissions of NO_X and CO would exceed the ton per year and pound per day thresholds of significance. By the end of Phases 1b (2026) and 2a (2030), emissions of VOC, NO_X, and CO would exceed both sets of thresholds with these pollutants/pollutant precursors and SO_X exceeding both sets of thresholds by the end of Phase 2b (2035) and continuing to the year 2050. As such, emissions of VOC, NO_X, CO, and SO_X would be a ***significant impact***.

Air Pollutant Concentrations

As stated previously, in the event that project emissions of NO_X, CO, or SO_X exceed the thresholds of significance, dispersion modeling is required to evaluate whether the proposed project's ground-level concentrations, including appropriate background levels, exceed the CAAQS and NAAQS.[34] The results of the proposed project dispersion modeling analysis are provided in Table 3.2-12 and Table 3.2-13 for the CAAQS and NAAQS, respectively. Both tables include the concentrations associated with the proposed project at buildout (2035).

[34] Dispersion modeling for VOCs was not performed because there are no ambient air quality standards (CAAQS or NAAQS) for VOCs.

Table 3.2-12: Dispersion Results for the Proposed Project: California Ambient Air Quality Standards (CAAQS)

Pollutant	Averaging Period	CAAQS Standards ($\mu g/m^3$)	Proposed Project ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)[1]	Exceeds CAAQS?
Nitrogen Dioxide (NO_2)	1-Hour	339	141	132	273	No
	Annual	57	7	24	31	No
Carbon Monoxide (CO)	1-Hour	23,000	1,907	2,865	4,386	No
	8-Hour	10,000	1,274	2,101	3,375	No
Sulfur Dioxide (SO_2)	1-Hour	655	109	4	112	No
	24-Hour	105	6	1	7	No
Particulate Matter 2.5 ($PM_{2.5}$)	Annual	12	1	10	10	No
Particulate Matter (PM_{10})	24-Hour	50	2	47	49	No
	Annual	20	1	23	24	Yes

Source: KB Environmental Sciences, Inc., 2019.
Note:
1. The total concentration equals the concentration with the proposed project plus the background concentration. For example, the existing background concentration of PM10 is 23 µg/m3; with the project, the PM10 concentration is 24 µg/m3. As such, the project results in a 1 µg/m3 increase, as compared to the existing environmental condition.

Table 3.2-13: Dispersion Results for the Proposed Project: National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Period	NAAQS Standards (µg/m3)	Proposed Project (µg/m3)	Background (µg/m3)	Total (µg/m3)[1]	Exceeds NAAQS ?
Nitrogen Dioxide (NO_2)	1-Hour	189	69	108	176	No
	Annual	100	7	24	31	No
Carbon Monoxide (CO)	1-Hour	40,000	1,907	2,865	4,772	No
	8-Hour	10,000	1,274	2,101	3,375	No
Sulfur Dioxide (SO_2)	1-Hour	196	90	3	92	No
	3-Hour	1,300	27	2	29	No
Particulate Matter 2.5 ($PM_{2.5}$)	24-Hour	35	2	22	24	No
	Annual	12	1	10	10	No
Particulate Matter (PM_{10})	24-Hour	150	2	42	44	No

Source: KB Environmental Sciences, Inc., 2019.
Note:
1. The total concentration equals the concentration with the proposed project plus the background concentration. For example, the existing background concentration of NO2 is 108 µg/m3; with the project, the NO2 concentration is 176 µg/m3. As such, the project results in a 69 µg/m3 increase, as compared to the existing environmental condition.

With respect to the CAAQS, the results of the dispersion analysis indicate that concentrations of NO_2, CO, SO_2, and $PM_{2.5}$ would be below the CAAQS. Levels of PM_{10} would also be below the CAAQS for the 24-hour standard for this pollutant; however, because the average annual background level of PM_{10} is already above the state standard, even for existing conditions without the proposed project, levels with the proposed project would also be above the standard. Because levels of PM_{10} are predicted to exceed the CAAQS in 2035 with the proposed project, the exceedance would be a ***significant impact***.

With respect to the NAAQS, the results of the dispersion analysis indicate that concentrations of NO_2, CO, SO_2, $PM_{2.5}$, and PM_{10} would all be below the standards. Therefore, with respect to the NAAQS, the concentrations/levels of these pollutants would be ***less than significant***.

3.2.7.2.3 Mitigation Measures

As indicated in Table 3.2-11, the majority (i.e., ranging from approximately 51 to more than 95 percent depending on the pollutant/pollutant precursor) of the emissions of VOC, NO_X, CO, and SO_X (the pollutants/pollutant precursors for which emission estimates exceed the thresholds of significance) are from aircraft operations. Notably, while the SDCRAA does not have authority to regulate aircraft operations or emissions from aircraft engines, as evidenced by the aircraft taxi times presented in Table R-C-7, implementation of the proposed project would reduce future aircraft taxi-related emissions through a concourse/gate design that would be more efficient than the existing configuration.

Because emissions of VOC, NO_X, CO, and SO_X would exceed the thresholds of significance, as would also concentration of PM_{10}, the following measures, are being recommended as mitigation for implementation with the proposed project. (Note: Measures that align with, or are functionally equivalent to, the City of San Diego's Climate Action Plan Consistency Checklist are identified with an asterisk. Additionally, italicized parenthetical text is used, where needed, to provide clarity regarding the quantifiable benefits of the mitigation measure; however, such text is not part of the mitigation measure itself.)

MM-AQ/GHG-1 Ground Support Equipment Conversion: All baggage tugs, belt loaders, lifts, pushback tractors, and utility carts at SDIA that are owned and operated by airlines and their ground handling contractors to service aircraft, shall be transitioned to alternative fuels (i.e., electric, natural gas, renewable diesel, biodiesel) by 2024.

Additionally, by 2024, 50 percent of gasoline-fueled GSE that are light duty vehicles owned and operated by SDCRAA would be replaced with hybrid electric vehicles and, by 2030, the remaining 50 percent of the fleet would be replaced with hybrid electric. This measure is considered feasible.

(For the quantification of this mitigation measure, 100 percent of the diesel-fueled GSE that operate at SDIA would convert to renewable diesel by 2024 and 100 percent of gasoline-fueled baggage tugs, belt loaders, utility carts, maintenance lifts, and pushback tugs that operate at SDIA would be replaced with eGSE by 2024. Additionally, 50 percent of gasoline-fueled GSE that are light duty vehicles owned and operated by SDCRAA would be replaced with hybrid electric vehicles by 2024, and the remaining 50 percent of the fleet would be replaced with hybrid electric by 2030. Notably, these vehicles were not assumed to be replaced with fully electric vehicles because the commercial availability of the light duty electric vehicles that would be required is uncertain.)

MM-AQ/GHG-2 Renewable Electricity: Project-related buildings shall be powered by 100 percent renewable electricity by 2024 and continuing thereafter through on-site

generation resources, grid-delivered purchases, and/or renewable energy certificates. This measure is considered feasible**.**

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-3 **Cool Roof:*** The project shall include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under 2016 California Green Building Standards Code. This measure is considered feasible**.**

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-4 **LEED Silver Certification:** The project shall demonstrate achievement of at least LEED Silver certification (or equivalent green rating certification) for all new major facilities, such as a new terminal, a new parking structure, or new SDCRAA administration building. This measure is considered feasible**.**

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-5 **Clean Vehicle Parking:*** The project shall designate 10 percent of new parking stalls for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles. This measure is considered feasible**.**

(The proposed project would provide 7,500 additional parking stalls at SDIA. To estimate the emission reduction for clean vehicle parking the analysis assumed that 10 percent of the additional parking staffs would be for airport employees/airport service vehicles and the turn-over rate of the staff would be two per day. The remaining stalls would be for passengers for which the turn-over rate would less (0.75 cars per day per stall). The average trip length of the clean vehicles was assumed to be 18 miles.)

MM-AQ/GHG-6 **Electric Vehicle Chargers:*** The project shall install electric vehicle charging ports at three percent of new parking stalls and another three percent would be "EVSE-ready". This measure is considered feasible**.**

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-7 **Ground Transportation Clean Vehicle Program:** In conjunction with the project, SDIA's current Commercial Ground Transportation Clean Vehicle Program shall be extended past 2020 with the goal that commercial operator

fleets achieve an average GHG rating of 10 (0-204 gCO_2/mile) by 2030 as scored by fueleconomy.gov (or an equivalent program). This measure is considered feasible.

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-8 Electric On-Airport Shuttles: In conjunction with the project, on-airport shuttles serving passenger and employee parking lots, and inter-terminal transfers shall be transitioned to electric vehicles (all-electric or plug-in hybrid) by 2026. The buses serving the Rental Car Center shall be transitioned to electric vehicles by 2028. This measure is considered feasible.

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-9 Bicycle Facilities:* To facilitate active transportation commuting, the project shall install shower stalls and lockers in the new Airport Administration Building and in the new terminal building based on the number of employees and guidance provided in the City of San Diego's Climate Action Plan Consistency Checklist (estimated at 7 shower stalls and 25 lockers total). In addition, covered bicycle storage shall be installed for SDCRAA and tenant employees based on non-public square footage and guidance provided in the City of San Diego's Climate Action Plan Consistency Checklist (estimated at 50 bike spaces total). This measure is considered feasible.

(The reduction in emissions that would result from this measure are not quantifiable at this level of project planning. As such, the analysis conservatively assumed no quantifiable reduction in emissions for this measure.)

MM-AQ/GHG-10 Employee Parking Cash-Out Program:* SDCRAA shall implement a parking cash-out program for its employees. This measure is considered feasible.

(Approximately three percent of the total trips to/from SDIA are SDCRAA employee-related. These employees would be eligible for the cash out program. Based on guidance prepared by CAPCOA, this type of program has an effectiveness of 3.7 percent in reducing motor vehicle trips which would result in a reduction in total trips to/from SDIA of approximately 0.1 percent). For the evaluation of this mitigation measure, the average trip length was also assumed to be 18 miles.)

Table 3.2-14 provides a breakdown of the proposed project's operational emissions by source at each of the future horizon years with implementation of the mitigation measures, for which quantified reductions in emissions can be estimated. Also provided in Table 3.2-14 is a comparison of the proposed project's mitigated emissions to the existing (2018) SDIA emission estimates, along with a determination of whether the incremental differences would exceed the applicable thresholds of significance. The mitigated emission totals are also compared to the emissions

estimates for the proposed project without mitigation. Also shown in Table 3.1-14 are the significance determinations from Table 3.12-11 as to whether the unmitigated emissions would be significant.

Table 3.2-14: Proposed Project With Mitigation - Operational Emissions Inventory

Phase/ Year	Sources	Pollutants											
		Tons/Year						Pounds/Day					
		VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
1a/ 2024	Aircraft	111	1,104	7	7	992	105	609	6,049	41	41	5,438	577
	APUs	<1	7	1	1	4	1	2	40	4	4	22	5
	GSE	19	51	2	2	314	<1	106	280	11	10	1,722	1
	Stationary Sources	4	17	6	2	11	1	21	93	35	9	60	7
	Motor Vehicles	2	13	9	1	107	1	10	73	49	6	587	3
	Energy Use	--	--	--	--	--	--	--	--	--	--	-	-
	Construction	3	17	10	1	17	<1	16	91	57	8	95	<1
	Totals	**140**	**1,209**	**36**	**14**	**1,446**	**108**	**765**	**6,626**	**196**	**78**	**7,925**	**592**
Existing 2018 Baseline Emissions		***141***	***1,058***	***25***	***14***	***1,887***	***95***	***773***	***5,797***	***135***	***75***	***10,341***	***519***
Difference from Existing 2018 Baseline		***-2***	***151***	***11***	***1***	***-441***	***13***	***-9***	***829***	***61***	***3***	***-2,416***	***73***
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Mitigated Emissions Exceeds Threshold?		***No***	***Yes***	***No***	***No***	***No***	***No***	***No***	***Yes***	***No***	***No***	***No***	***No***
Proposed Project Without Mitigation Emissions		***149***	***1,241***	***37***	***15***	***2,006***	***108***	***817***	***6,800***	***201***	***80***	***10,993***	***592***
Mitigated Emissions Difference from Proposed Project Without Mitigation		***-10***	***-32***	***-1***	***<-1***	***-560***	***<-1***	***-52***	***-174***	***-5***	***-2***	***-3,068***	***0***
Unmitigated Emissions Exceed Threshold (from Table 3.2-11)?		***No***	***Yes***	***No***	***No***	***Yes***	***No***	***No***	***Yes***	***No***	***No***	***Yes***	***No***
1b/ 2026	Aircraft	120	1,186	8	8	1,045	111	655	6,501	44	44	5,728	610
	APUs	<1	8	1	1	4	1	2	42	4	4	20	5
	GSE	19	51	2	2	352	<1	103	278	10	9	1,926	1
	Stationary Sources	4	17	6	2	11	1	21	93	35	9	60	7
	Motor Vehicles	2	17	11	1	111	1	10	96	59	7	611	3
	Energy Use	--	--	--	--	--	--	--	--	--	--	--	--
	Construction	1	6	6	1	6	0	5	31	33	4	34	<1
	Totals	145	1,285	34	14	1,529	114	797	7,040	185	76	8,380	626
Existing 2018 Baseline Emissions		***141***	***1,058***	***25***	***14***	***1,887***	***95***	***773***	***5,797***	***135***	***75***	***10,341***	***519***
Difference from Existing 2018 Baseline		***4***	***227***	***9***	***<1***	***-358***	***20***	***23***	***1,243***	***50***	***2***	***-1,961***	***107***
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Mitigated Emissions Exceeds Threshold?		***No***	***Yes***	***No***	***No***	***No***	***No***	***No***	***Yes***	***No***	***No***	***No***	***No***
Proposed Project Without Mitigation Emissions		***155***	***1,314***	***34***	***15***	***2,101***	***114***	***851***	***7,198***	***188***	***80***	***11,499***	***626***

Table 3.2-14: Proposed Project With Mitigation - Operational Emissions Inventory

Phase/ Year	Sources	Pollutants											
		Tons/Year						Pounds/Day					
		VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
Mitigated Emissions Difference from Proposed Project Without Mitigation		***-10***	***-30***	***-1***	***-1***	***-572***	***<-1***	***-55***	***-168***	***-4***	***-3***	***-3,131***	***≤1***
Unmitigated Emissions Exceed Threshold (from Table 3.2-11)?		***Yes***	***Yes***	***No***	***No***	***Yes***	***No***	***Yes***	***Yes***	***No***	***No***	***Yes***	***No***
2a/ 2030	**Aircraft**	132	1,404	8	8	1,146	125	724	7,691	45	45	6,280	684
	APUs	<1	8	1	1	4	1	2	42	4	4	21	5
	GSE	15	31	1	1	303	<1	82	171	5	4	1,658	1
	Stationary Sources	4	17	6	2	11	1	21	93	35	9	60	7
	Motor Vehicles	1	10	10	1	98	<1	7	55	57	5	536	3
	Energy Use	--	--	--	--	--	--	--	--	--	--	--	--
	Construction	1	7	3	<1	13	<1	4	39	16	2	71	<1
	Totals	**153**	**1,477**	**29**	**13**	**1,574**	**128**	**840**	**8,092**	**161**	**70**	**8,626**	**700**
Existing 2018 Baseline Emissions		***141***	***1,058***	***25***	***14***	***1,887***	***95***	***773***	***5,797***	***135***	***75***	***10,341***	***519***
Difference from Existing 2018 Baseline		***12***	***419***	***5***	***-1***	***-313***	***33***	***66***	***2,295***	***26***	***-5***	***-1,715***	***181***
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Mitigated Emissions Exceeds Threshold?		***No***	***Yes***	***No***	***No***	***No***	***No***	***No***	***Yes***	***No***	***No***	***No***	***No***
Proposed Project Without Mitigation Emissions		***165***	***1,512***	***31***	***13***	***2,225***	***128***	***905***	***8,284***	***170***	***73***	***12,194***	***700***
Mitigated Emissions Difference from Proposed Project Without Mitigation		***-12***	***-35***	***-2***	***-1***	***-651***	***<-1***	***-65***	***-192***	***-8***	***-3***	***-3,568***	***-1***
Unmitigated Emissions Exceed Threshold (from Table 3.2-11)?		***Yes***	***Yes***	***No***	***No***	***Yes***	***No***	***Yes***	***Yes***	***No***	***No***	***Yes***	***No***
2b/ 2035	**Aircraft**	149	1,660	9	9	1,386	149	819	9,098	50	50	7,597	818
	APUs	<1	9	1	1	5	1	2	48	5	5	26	6
	GSE	15	35	1	1	329	<1	84	193	6	5	1,805	1
	Stationary Sources	4	17	6	2	11	1	22	93	35	9	60	7
	Motor Vehicles	1	7	11	1	89	1	4	40	58	5	487	3
	Energy Use	--	--	--	--	--	--	--	--	--	--	--	--
	Construction	<1	1	2	<1	2	<1	2	8	13	2	11	<1
	Totals	170	1,730	30	14	1,823	152	933	9,481	167	76	9,986	834
Existing 2018 Baseline Emissions		*141*	*1,058*	*25*	*14*	*1,887*	*95*	*773*	*5,797*	*135*	*75*	*10,341*	*519*
Difference from Existing 2018 Baseline		*29*	*676*	*6*	*<1*	*-64*	*58*	*161*	*3,704*	*33*	*3*	*-350*	*316*
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***

Table 3.2-14: Proposed Project With Mitigation - Operational Emissions Inventory

Phase/ Year	Sources	Pollutants											
		Tons/Year						Pounds/Day					
		VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOC	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
Mitigated Emissions Exceeds Threshold?		***Yes***	***Yes***	***No***	***No***	***No***	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***	***Yes***
Proposed Project Without Mitigation Emissions		***181***	***1,754***	***31***	***14***	***2,506***	***152***	***994***	***9,613***	***171***	***78***	***13,730***	***835***
Mitigated Emissions Difference from Proposed Project Without Mitigation		***-11***	***-24***	***-1***	***-1***	***-683***	***<-1***	***-62***	***-132***	***-4***	***-3***	***-3,744***	***<-1***
Unmitigated Emissions Exceed Threshold (from Table 3.2-11)?		***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***	***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***
2050	**Aircraft**	157	1,795	9	9	1,427	158	861	9,833	52	52	7,822	864
	APUs	<1	10	1	1	5	1	2	53	5	5	28	7
	GSE	18	31	1	1	370	<1	98	169	3	3	2,030	1
	Stationary Sources	4	17	6	2	11	1	22	93	35	9	60	7
	Motor Vehicles	<1	4	11	1	86	<1	2	23	59	4	472	3
	Energy Use	--	--	--	--	--	--	--	--	--	--	--	--
	Totals	180	1,856	28	13	1,900	161	986	10,172	154	73	10,412	881
Existing 2018 Baseline Emissions		***141***	***1,058***	***25***	***14***	***1,887***	***95***	***773***	***5,797***	***135***	***75***	***10,341***	***519***
Difference from Existing 2018 Baseline		***39***	***798***	***3***	***<1***	***13***	***66***	***213***	***4,375***	***19***	***-1***	***71***	***362***
Threshold of Significance		***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Mitigated Emissions Exceeds Threshold?		***Yes***	***Yes***	***No***	***No***	***No***	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***	***Yes***
Proposed Project Without Mitigation Emissions		***183***	***1,862***	***28***	***14***	***2,029***	***161***	***1,004***	***10,202***	***153***	***74***	***11,116***	***881***
Mitigated Emissions Difference from Proposed Project Without Mitigation		***-3***	***-6***	***<-1***	***<-1***	***-129***	***<-1***	***-18***	***-31***	***<-1***	***-1***	***-704***	***<-1***
Unmitigated Emissions Exceed Threshold (from Table 3.2-11)?		***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***	***Yes***	***Yes***	***No***	***No***	***Yes***	***Yes***

Source: KB Environmental Sciences, Inc., 2019.
Note: Totals may reflect rounding.

As shown in Table 3.2-14, implementation of the mitigation measures with quantifiable emission reductions would result in the following significant emissions associated with project operations being reduced to less than significant:

- 2024 – CO
- 2026 and 2030 – VOC and CO
- 2035 and 2050 – CO

Emissions that would still exceed the applicable thresholds of significance even with mitigation include the following:

- 2024, 2026, and 2030 – NO_X
- 2035 and 2050 – VOC, NO_X, and SO_X

Air Pollutant Concentrations

The results of the dispersion analysis that was performed for the proposed project with mitigation are provided in Table 3.2-15 and Table 3.2-16 for the CAAQS and NAAQS, respectively. With the exception of CO, when compared to the proposed project without mitigation, concentrations of evaluated pollutants would be the same with the mitigation. The lower concentration of CO with mitigation is primarily a result of Mitigation Measure MM-AQ/GHG-1, the measure that converts off-road GSE owned and operated by the airlines and their ground handling contractors to alternative fuels by 2024.

With respect to the CAAQS, the results of the dispersion analysis indicate that concentrations of NO_2, CO, SO_2, and $PM_{2.5}$ would be below the CAAQS, for both with and without mitigation. Levels of PM_{10} would also be below the CAAQS for the 24-hour standard for this pollutant; however, because the average annual background level of PM_{10} is above the standard, levels with the proposed project, both with and without mitigation measure, would also be above the standard. Because levels of PM_{10} are predicted to exceed the CAAQS in 2035 with the proposed project and emissions are estimated to increase when compared to existing levels, the exceedance with the proposed project, even with mitigation, would remain a significant impact.

With respect to the NAAQS, the results of the dispersion analysis indicate that concentrations of NO_2, CO, SO_2, $PM_{2.5}$, and PM_{10} would all be below the standards for both with and without mitigation.

Table 3.2-15: Dispersion Results for the Proposed Project with Mitigation: California Ambient Air Quality Standards (CAAQS)

Pollutant	Averaging Period	CAAQS Standards (µg/m³)	Proposed Project (µg/m³)	Background (µg/m³)	Total (µg/m³)[1]	Exceeds CAAQS?
Nitrogen Dioxide (NO_2)	1-Hour	339	141	132	273	No
	Annual	57	7	24	31	No
Carbon Monoxide (CO)	1-Hour	23,000	521	2,865	3,386	No
	8-Hour	10,000	223	2,101	2,324	No
Sulfur Dioxide (SO_2)	1-Hour	655	109	3.7	112	No
	24-Hour	105	6	1	7	No
Particulate Matter 2.5 ($PM_{2.5}$)	Annual	12	1	10	10	No
Particulate Matter (PM_{10})	24-Hour	50	2	47	49	No
	Annual	20	1	23	24	Yes

Source: KB Environmental Sciences, Inc., 2019.

Note:

1. The total concentration equals the concentration with the proposed project plus the background concentration. For example, the existing background concentration of PM10 is 23 µg/m3; with the project, the PM10 concentration is 24 µg/m3. As such, the project results in a 1 µg/m3 increase, as compared to the existing environmental condition.

Table 3.2-16: Dispersion Results for the Proposed Project with Mitigation: National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Period	NAAQS Standards (µg/m3)	Proposed Project (µg/m3)	Background (µg/m3)	Total (µg/m3)[1]	Exceeds NAAQS?
Nitrogen Dioxide (NO_2)	1-Hour	189	69	108	176	No
	Annual	100	7	24	31	No
Carbon Monoxide (CO)	1-Hour	40,000	521	2,865	3,386	No
	8-Hour	10,000	223	2,101	2,324	No
Sulfur Dioxide (SO_2)	1-Hour	196	90	3	92	No
	3-Hour	1,300	27	2	29	No
Particulate Matter 2.5 ($PM_{2.5}$)	24-Hour	35	2	22	24	No
	Annual	12	1	10	10	No
Particulate Matter (PM_{10})	24-Hour	150	2	42	44	No

Source: KB Environmental Sciences, Inc., 2019.
Note:
1. The total concentration equals the concentration with the proposed project plus the background concentration. For example, the existing background concentration of NO2 is 108 µg/m3; with the project, the NO2 concentration is 176 µg/m3. As such, the project results in a 69 µg/m3 increase, as compared to the existing environmental condition.

It should be noted that the SDCRAA has a long-standing commitment to sustainability at SDIA including, but not limited to, the reduction of air pollutant emissions such as criteria pollutants and GHG. There are numerous existing plans, programs, policies, and practices at SDIA that currently serve to reduce such emissions and are already responsive to the types of mitigation measures often recommended to be included in environmental documents for the reduction of air pollutant and GHG emissions. Table 3.2-17 presents an overview of potential measures for the reduction of air pollutants emissions, including criteria pollutant emissions, that come from a variety of sources such as the FAA, the ACRP,[35] and CARB. The table indicates whether such measures: are already being implemented at SDIA; are proposed to be included in the project as a design/operational feature or as a mitigation measure; or are considered to be not applicable to, or impractical for, SDIA and the proposed project.

As indicated in Table 3.2-17, the vast majority of potential measures for reducing air pollutant and GHG emissions are already being implemented at SDIA and would extend to implementation of the proposed project, and additional measures, such as project design/operational features (such as hydrant fueling) or mitigation measures specific to the proposed project (as outlined above), would serve to further reduce the air pollutant and GHG emissions of the proposed project.

[35] The Airport Cooperative Research Program (ACRP) is an industry-driven, applied research program that develops near-term, practical solutions to problems faced by airport operators. ACRP is managed by the Transportation Research Board of the National Academies and sponsored by the FAA.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Projects that may be funded through the FAA VALE grant program or other sources:				
Alternative Fuel Vehicles. VALE incentivizes airport sponsors by funding the incremental cost of alternative fuel vehicles instead of conventionally-powered diesel and gasoline vehicles. Alternative fuels include compressed natural gas (CNG), electricity, hybrid technologies, and hydrogen. The supporting recharging/refueling infrastructure is also eligible for funding. The Airport can expand the use of alternative fuel vehicles.	GSE Motor Vehicles	EP MM-AQ/GHG-1 MM-AQ/GHG-6		SDIA already has existing programs that promote the conversion and/or use of alternative fuel vehicles, and additional measures are identified in this table for expansion of those programs (i.e., MM-AQ/GHG-1 for converting additional GSE to alternative fuels and MM-AQ/GHG-6 supporting installation of chargers for electric vehicles). Although VALE funding would likely be pursued to support these initiatives, they are not dependent on VALE funding.
Gate Electrification. Electric Preconditioned Air (PCA) (point-of-use or centralized) and ground power converter units (mobile or fixed) significantly reduce emissions associated with aircraft APU usage. Necessary upgrades to the supporting electrical infrastructure to operate the equipment are also eligible for funding. The Airport can expand the use of PCA beyond what is already occurring.	APU Energy Use	EP DF		SDIA has received VALE funding for PCA Units (2011 & 2013) and gate electrification (2011). Additionally, it should be noted that all new gates developed in conjunction with the proposed project would include PCA and gate electrification.
Remote Ground Power. Electric ground power converter units reduce aircraft APU emissions by providing clean electricity to remote parking positions for remain–over–night (RON), cargo, and maintenance operations. The necessary upgrades to the supporting electrical infrastructure are also eligible for funding. The Airport can expand the use of remote ground power beyond current conditions.			Impractical	The Airport site's 661-acres limits the number and placement of RON positions for aircraft. This results in RON positions having to serve varying aircraft sizes and in varying parking configurations, which makes fixed Remote Ground Power units impractical/infeasible.
Ground Support Equipment (GSE). Replacing airport sponsor-owned conventionally–fueled belt loaders, cargo loaders, bag tugs, and pushback tractors with electric or hydrogen-powered	GSE	EP MM-AQ/GHG-1		As noted above, SDIA already supports alternatively-fueled GSE and would be expanding the use of such GSE regardless of whether VALE funding is obtained. For example, a new GSE Conversion Program, which applies to airlines and ground

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
counterparts can significantly reduce on-airport emissions. Refueling stations and/or recharging equipment, and necessary infrastructure are eligible for funding. The Airport can expand the use of alternatively fueled GSE.				handlers operating at SDIA, is included as a mitigation measure (MM-AQ/GHG-1).
Geothermal Systems. Geothermal systems improve air quality and reduce emissions by utilizing the earth's underground temperature to supply airport buildings with cooled air in the summer and warmed air in the winter. VALE funding can be provided for the pro–rated share of the geothermal system that directly offsets conventional fuel use.			Impractical	The setting and mild climate of SDIA is not compatible with development of geothermal systems.
Solar Thermal Technologies. Utilizing solar thermal technologies can offset or eliminate the use of fossil–fuel hot water systems. These projects are eligible for VALE funding inasmuch as they offset heating and cooling emissions produced by on-airport gas and oil-fired burners.			Impractical	Solar Thermal Energy technologies were formally assessed as part of the SDIA's Strategic Energy Plan. Through this assessment, it was determined that Solar Thermal was not a cost-effective strategy due to the Airport's low demand for domestic hot water.
Underground Fuel Hydrant. The purpose of any hydrant fueling system is to provide fuel to aircraft via valves in underground structures located at the terminal gates. While parked at the terminal, an aircraft is connected to the valves via a hose and a hydrant cart. Emission reductions can be achieved by replacing large fuel trucks with zero-emission, electric fueling carts.	Motor Vehicles	EP DF		SDIA is currently in the process of implementing an underground hydrant fueling system for aircraft, and the development of new gates as part of the proposed project would include, as a design feature, installation of hydrant fueling infrastructure to tie into that system.
Projects that may be funded through the FAA Airport Zero Emission Vehicle (ZEV) and Infrastructure Pilot Program or other sources:				
Zero Emission Airport Vehicles. These are often vehicles with all-electric or hydrogen-powered drive trains. Vehicles that transport airport passenger and employees are the most common	Motor Vehicles	EP MM-AQ/GHG-8		SDIA is in the final stages of securing a FAA ZEV grant for up to four electric buses that will be used for inter-terminal passenger transfers. In addition, in conjunction with MM-AQ/GHG-8, SDIA is working with its parking management

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
vehicle type. Certain light and heavy-duty trucks may also be eligible for funding. The Airport can expand the use of ZEV vehicles onsite.		MM-TDM-1 (see Section 3.14)		contractor to replace propane-fueled Employee and Parking Lot shuttles to transition all on-airport shuttles to electric vehicles by 2026 (Rental Car Center shuttles by 2028). Additionally, as mitigation for traffic impacts, SDIA would also be launching a new shuttle service between the terminals and the Old Town Transit Center utilizing all-electric buses (see Measure 3 in MM-TDM-1).
ZEV Infrastructure. This includes refueling stations, rechargers, on-site fuel storage tanks, and other equipment needed for station operation. Airports must limit the capacity of refueling and recharging stations to the number of project vehicles and their fueling requirements. The Airport can expand the ZEV infrastructure onsite.	Motor Vehicles	EP DF MM-AQ/GHG-6		SDIA currently has electric vehicle chargers both airside and landside. As a design feature of the proposed project, each new aircraft gate would be equipped with four ports for charging of electric GSE. Under MM-AQ/GHG-6, electric vehicle charging ports would be provided for three percent of new public parking stalls (another three percent would be "EVSE-ready").
Aircraft operational changes, such as single engine taxi and reduced use of reverse thrust at the pilots' discretion.	Aircraft	EP		As part of update to its official Airport Rules and Regulations, SDIA requires Airlines to advise all of their pilots to practice single-engine taxiing, whenever practical.
Fee-based strategies, such as increased or variable landing fees, based on emissions that result in a greater charge being levied on higher polluting aircraft entering the Airport. Variable aircraft landing fees have been implemented at Zurich and Geneva Airports in Switzerland, and at nineteen airports in Sweden.			Not Applicable	Under the Airport Noise and Capacity Act of 1990, public-use airport operators in the United States are not permitted to create facility use regulations that are discriminatory against one type or size of aircraft.
Requiring the purchase of cleaner alternatives when fleet vehicles or equipment are replaced or added.	Motor Vehicles	EP DF MM-AQ/GHG-1		SDIA currently purchases cleaner alternatives when fleet vehicles or equipment are replaced or added, and the new GSE Conversion Program under MM-AQ/GHG-1 will further support such transitions. As previously mentioned, the proposed project would provide, as a design feature, electric-GSE charging stations at each new gate, which would help facilitate the transition to cleaner vehicles and equipment.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Developing a declining fleet emissions target can be utilized to achieve emissions reductions from GSE and ground access vehicles.	Motor Vehicles	EP MM-AQ/GHG-1 MM-AQ/GHG-7		SDIA currently has a Clean Vehicle Conversion Incentive Program that applies to commercial ground transportation providers, which includes increasing fees over time for non-alternative fuel vehicles. In addition, a new GSE Conversion Program under MM-AQ/GHG-1 is included as a mitigation measure requiring expanded use of electric and other alternative fueled GSE and on-road vehicles by airport tenants. Also, MM-AQ/GHG-7 provides for the extension of the Ground Transportation Clean Vehicle Program.
Use of Tier 4 diesel equipment in cases where alternative fuels are not used.	Construction GSE	EP MM-AQ/GHG-1		Standard language for SDIA agreements requires the use of low- and zero-emitting equipment during construction activities, whenever reasonably available. In addition, Tier 4 diesel equipment are explicitly encouraged as part of a new GSE Conversion Program under MM-AQ/GHG-1.
Use of low or no volatile organic compound (VOC) paint and consumer products.	Construction	EP MM-AQ/GHG-4		SDIA currently has requirements for the use of low or no VOC paint. In addition, under MM-AQ/GHG-4, the proposed project would achieve at least LEED-Silver certification under the U.S. Green Building Council (or equivalent green rating certification) that requires the use of low VOC materials.
Installation of low NO_X boilers or replacement of boilers with solar thermal technologies.	Stationary	DF		The proposed project includes replacement of existing older boilers at the Central Utility Plant with new low-NO_x boilers.
Use of renewable diesel fuel in equipment onsite.	Motor Vehicles GSE	EP MM-AQ/GHG-1		SDIA encourages the use of renewable diesel at the Airport, and piloted its use for Rental Car Center buses in 2017. Additionally, the new GSE Conversion Program under MM-AQ/GHG-1 includes requirements for the conversion of regular diesel fuel to renewable diesel fuel.
The *Sustainable Airport Construction Practices* report from the Airport Cooperative Research Program, specifically, ACRP Report 42 (ISSN 1935-9802) from 2011 identifies numerous measures that could serve to reduce emissions. Specific measures include:				
Provide Infrastructure for Preconditioned Air and Ground Power, and Minimize the Use of Auxiliary Power Units.	APU Energy Use	EP DF		All existing gates at SDIA are equipped with PCA and ground power, which would also, as a design feature of the proposed project, be the case with the development of new gates.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Design Airside Layout to Reduce Aircraft Delay and Surface Vehicle Congestion.	Aircraft	DF		The proposed replacement of the existing T1's pier concourses with the linear concourse design of the new terminal provides for more efficient aircraft movement, which reduces air pollutant emissions. In addition, the new Taxiway A would reduce airfield congestion by allowing bidirectional aircraft flow.
Implement Emission-Based Incentives and Landing Fees.			Not Applicable	Under the Airport Noise and Capacity Act of 1990, public-use airport operators in the United States are not permitted to create facility use regulations that are discriminatory against one type or size of aircraft.
Support Modernization of Air Traffic Management by using satellite–based navigation and other technology.	Aircraft	EP		The FAA Metroplex Program, which has been implemented in San Diego and throughout southern California, provides for such improved technology.
Support Reduced Engine Taxiing by reducing the number of engines for aircraft taxiing or idling on the ground.	Aircraft	EP		As part of an update to its official Airport Rules and Regulations, SDIA requires Airlines to advise all of their pilots to practice single-engine taxiing, whenever practical.
Support Use of Alternative Fuels in Aircraft Through Development or Facilitation of Fuel Supply.	Aircraft	EP		SDIA entered into a formal partnership with San Francisco International Airport in 2018 to jointly collaborate with airlines, aircraft manufacturers, and other key industry stakeholders to facilitate the increased production and use of sustainable aviation jet fuel in California.
Use Airport-Specific Sustainable Planning, Design, and Construction Guidelines, and Set a Policy for Green Building Certification of Buildings.	Construction Energy Use	EP MM-AQ/GHG-4		SDCRAA's Board-approved "Sustainability Policy" includes overall sustainable construction and operation guidance. In addition, the proposed project would, under MM-AQ/GHG-4, meet at least LEED-Silver certification (or equivalent green rating certification).
Provide employees incentives to use public transportation.	Motor Vehicles	EP MM-AQ/GHG-10		SDCRAA currently provides financial incentives for employees to use public transportation in commuting to and from work. MM-AQ/GHG-10 provides for an employee parking cash-out program, which will serve as an additional incentive to use public transit.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Provide bicycle access, storage, and changing rooms for building users.	Motor Vehicles	EP DF MM-AQ/GHG-9		SDIA currently provides for bicycle access and storage. The proposed project incorporates, as a design feature, a new bicycle and pedestrian path along North Harbor Drive. Additional bicycle storage, as well as shower facilities, would be provided under MM-AQ/GHG-9.
Install fueling stations for alternative-fueled vehicles.	Motor Vehicles	EP DF MM-AQ/GHG-6		SDIA currently has electric vehicle chargers both airside and landside, as well as on-site fueling infrastructure for compressed natural gas and propane. As a project design feature, each new aircraft gate would be equipped with four ports for charging of electric GSE. Additionally, under MM-AQ/GHG-6, electric vehicle charging ports would be provided for three percent of new public parking stalls (another 3 percent would be "EVSE-ready").
Optimize energy performance above minimum levels of efficiency, including through the use of light–emitting diode (LED) lighting on the airfield.	Energy Use	EP DF		SDIA has already converted airfield lighting to high-efficiency LED lighting, and the airfield lighting for the taxiway improvements proposed as part of the project would, as a design feature, also utilize LED lighting.
Using alternative refrigerants to chlorofluorocarbons, hydrochlorofluorocarbons, and hydrofluorocarbons based on their global warming potential (GWP).	Stationary	EP MM-AQ/GHG-4		As part of its standard practice, SDIA has phased out older refrigerants, which typically have higher GWP. The proposed T1 replacement would, under MM-AQ/GHG-4, also achieve at least LEED-Silver certification (or equivalent green rating certification), which requires fundamental refrigerant management to phase out CFCs and eliminate leakage (LEED E&A Prerequisite 3).
Generate or procure green power.	Energy Use	EP MM-AQ/GHG-2		Approximately 85 percent of SDIA's current power purchases are from renewable energy resources. Operation of the T1 replacement terminal, which is part of the proposed project, would, under MM-AQ/GHG-2, be powered by 100 percent renewable energy resources through on-site generation, grid-delivered purchases, and/or renewable energy certificates.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Use clean-fuel construction vehicles with pollution-control technology or low-emission construction vehicles.	Motor Vehicles	EP		SDIA construction contracts include provisions encouraging the use of clean-fuel construction vehicles with pollution-control technology or low-emission construction vehicles.
Create a Carbon Offset Purchasing Strategy.	Multiple	EP		As part of its involvement in the Airport Carbon Accreditation program, the SDCRAA purchases carbon offsets equivalent to its residual Scope 1, 2, and employee business travel emissions.
Offer Voluntary Carbon Offsets for Passengers.	Aircraft	EP		SDIA currently provides passengers with the ability to purchase carbon offsets for their air travel through The Good Traveler Program. Initially started by SDIA, The Good Traveler Program now operates nationwide at 11 airports and is administered by the Rocky Mountain Institute.
Develop an Airport Expansion and Development GHG Emission Policy.	Multiple	EP		Since 2010, SDIA has been implementing an Air Quality Management Plan to address GHG emissions. SDIA has developed a Carbon Neutrality Plan (CNP) that provides a framework for continuing to effectively manage emissions and for achieving "carbon neutrality" under the Airports Council International (ACI) Airport Carbon Accreditation program. The final draft CNP is available at www.san.org/green.
Develop and Maintain Environmental Management Systems to integrate environmental considerations in the management of an airport.	Multiple	EP		SDIA currently has, and maintains, an Environmental Management System (known as "SANtrack").
Implement a Construction Vehicle Idling Plan, and Specify Low-Emissions Construction Vehicles and Equipment.	Construction	EP		As part of all SDIA construction contracts, idling limits and low-emission vehicle and equipment requirements are set forth.
Recycle and Reuse Construction and Demolition Materials.	Energy Use	EP		SDIA construction contracts include provisions that require recycling and reuse of construction and demolition materials.
Install Sustainable, Long-Term Vegetation and Invest in Terrestrial Carbon Sinks.	Energy Use	EP DF		SDIA has an extensive program for the replacement of water-intensive ornamental vegetation at the Airport with more sustainable, drought tolerant vegetation and high-efficiency irrigation. Sustainable drought tolerant vegetation with high-

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
				efficiency irrigation would also be installed with new development associated with the proposed project. Additional measures for water conservation features related to landscaping are set forth in SDIA's Water Stewardship Plan available at www.san.org/green.
Implement Energy Management Measures: • Use thermal imaging to identify energy losses. • Develop and market an energy conservation program for building users. • Implement a lighting system energy conservation program. • Purchase Energy Star equipment. • Install window awnings or sunshades. • Utilize sophisticated energy models for building design. • incorporate use of natural ventilation and economizer control. • Change set points or exclude selected zones from heating and cooling. • Develop a strategic energy management plan. • Evaluate fuel mix.	Energy Use	EP		SDIA has a comprehensive Strategic Energy Plan (STEP) that establishes SDIA's approach in the provision of cost-effective, energy resilience strategies that are environmentally responsible and fully aligned with airport operations and development. It addresses key issues of energy efficiency and conservation including on-site energy generation and storage, enhanced monitoring of key energy metrics, and mechanisms through which to actively engage the broad spectrum of airport stakeholders. The Strategic Energy Plan can be accessed at www.san.org/green.
Enter Into a Green Power Purchase Agreement.	Energy Use	EP MM-AQ/GHG-2		Approximately 85 percent of SDIA's current power purchases are from renewable energy resources. Operation of the T1 replacement terminal, which is part of the proposed project, would, under MM-AQ/GHG-2, be powered by 100 percent renewable energy resources through on-site generation, grid-delivered purchases, and/or renewable energy certificates.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Support Alternatively Fueled GSE.	GSE	EP MM-AQ/GHG-1		SDIA currently supports and encourages alternatively fueled GSE, with approximately 30 percent of the over 800 pieces of GSE in 2018 being alternatively fueled, including approximately 26 percent being electric GSE. Under MM-AQ/GHG-1, SDIA would implement a program to convert GSE, which are owned and operated by airlines and their ground handling contractors to service aircraft, to alternative fuels (i.e., electric, natural gas, renewable diesel, biodiesel) by 2024.
Promote Public Transit to the Airport and Increase Mass Transit Access to the Airport.	Motor Vehicles	EP MM-TDM-1 (see Section 3.14)		The 2016 Airport Transit Plan for SDIA includes provisions for improved access to, and use of, public transit at the Airport. Additionally, a new shuttle system providing service between SDIA and the Old Town Transit Center would be implemented as a component of MM-TDM-1.
Support Alternatively Fueled Taxis.	Motor Vehicles	EP MM-AQ/GHG-7		SDIA currently has a Clean Vehicle Conversion Incentive Program that applies to commercial ground transportation providers (including taxis), which includes increasing fees over time for non-alternative fuel vehicles. The program has resulted in over 95 percent of taxis currently being alternatively fueled. Also, MM-AQ/GHG-7 provides for the extension of this Ground Transportation Clean Vehicle Program.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Start or Enhance a Waste Reduction or Recycling Program.	Energy Use	EP MM-AQ/GHG-4		SDIA has a long-standing successful waste reduction and recycling program. The City of San Diego's Environmental Services Department has recognized SDIA as being "Recycler of the Year" consistently for the past 15 years. Additionally, SDIA is developing a Zero Waste Plan (ZWP), which will serve as the SDCRAA's strategy for managing various waste issues and covers all waste generated at SDIA. As mentioned, the proposed project would be required to meet strict waste management requirements as part of its LEED- Silver certification (or equivalent green rating certification) under MM-AQ/GHG-4.
Start or Enhance a Green Procurement Program.	Energy	EP		SDIA currently implements a Green Procurement Program. Additionally, SDIA's Strategic Energy Plan, Clean Transportation Plan, and Carbon Neutrality Plan, which can all be accessed at www.san.org/green, help promote green procurement.
Create a Detailed Operations and Maintenance Manual.	Energy	EP		As part of all SDIA construction projects, a detailed Operations & Maintenance Manual is prepared to guide the commissioning and long-term operation of the asset.
Use a Computerized Maintenance Management System.	Multiple	EP		SDIA currently has a Computerized Maintenance Management System.
Conduct Regular Greenhouse Gas Emission Inventories.	Multiple	EP		SDIA currently conducts annual GHG inventories as part of its ongoing certification under the ACI Airport Carbon Accreditation program. These inventories are verified by a third-party and adhere to all industry carbon accounting standards.
Install Tenant Energy Sub-Metering Systems.	Energy	EP DF		Since 2013, SDIA has installed sub-metering systems into tenant spaces as part of construction projects. Similarly, the proposed project includes tenant sub-metering, as part of its design, to allow the Airport to better manage its energy resources.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Perform Energy Audits.	Energy	EP		SDIA currently conducts energy audits on a regular basis as outlined in its Strategic Energy Plan (which is available at www.san.org/green).
Install Building–Mounted or Ground-Mounted Solar Photovoltaic Panels, and install Solar Thermal Systems for Hot Water Production.	Energy	EP MM-AQ/GHG-2	Solar-heated hot water determined to be impractical	SDIA currently has 5.5 MW total of solar photovoltaic systems located on Terminal 2's surface parking lot and roof, as well as in the Employee Parking Lot off Pacific Highway. The proposed project includes, as MM-AQ/GHG-2, a commitment to use 100 percent renewable electricity for the new T1 and Airport Administration Building, through on-site generation, grid-delivered purchases, and/or renewable energy certificates. As previously mentioned, Solar Thermal was not determined to be a cost-effective strategy at SDIA due to the Airport's low demand for domestic hot water.
Install Building-Mounted Wind Turbines and On- or Off-Airport Wind Turbines.			Impractical	Wind Turbines were formally assessed as part of the SDIA's Strategic Energy Plan. Through this assessment, it was determined that SDIA does not have the wind regime necessary to support the feasible development of a wind energy system.
Replace Refrigerants with Natural or Lower Global Warming Potential Gases, Incorporate Intelligent Fault Diagnosis for HVAC Refrigerant Systems, and Install Microchannel Components and Heat Exchangers.	Stationary	EP MM-AQ/GHG-4		As part of its standard practice, SDIA has phased out older refrigerants, which typically have higher GWP. The proposed T1 replacement would also achieve at least LEED-Silver certification, which requires fundamental refrigerant management to phase out CFCs and eliminate leakage (LEED E&A Prerequisite 3).
Runway, taxiway, hold pad, and other airfield improvements that would reduce GHG emissions by reducing airfield congestion.	Aircraft	DF		The proposed replacement of the current T1's pier concourses with a more linear design, as well as the addition of Taxiway A, would, as a design feature, significantly improve airfield efficiency and reduce associated GHG emissions from aircraft.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Energy assessments on new buildings or on the expansion of an existing building, funded as incidental elements of the building design.	Energy	EP		Energy assessments are included in the planning of new and expanded buildings at SDIA, as would also be the case in the detailed design of buildings included in the proposed project (i.e., new administration building, T1 Parking Structure, and terminal building improvements/replacement).
Energy-efficient terminal development projects, including baggage claim delivery areas, automated baggage-handling equipment, public-use corridors to boarding areas, central waiting rooms, restrooms, holding areas, foyers and entryways, and passenger loading bridges.	Energy	EP MM-AQ/GHG-4		Such energy-efficiency in the planning and development of terminal development was demonstrated in the Green Build Project and would also occur with the currently proposed project. All new facilities constructed as part of the proposed project would, under MM-AQ/GHG-4, achieve at least LEED-Silver certification (or equivalent green rating certification), which requires optimal energy performance.
On-airport rapid transit systems and multimodal terminal buildings.	Motor Vehicles	EP MM-TDM-1 (see Section 3.14)		The 2016 Airport Transit Plan for SDIA includes provisions for improved access to, and use of, public transit at the Airport. Additionally, a new all-electric shuttle service between SDIA and the Old Town Transit Center would be implemented as a component of MM-TDM-1.
Appendix B to the State's 2017 Scoping Plan identifies potential actions that could be undertaken at a local level to support the State's climate goals.[36]				
Construction				
Enforce idling time restrictions for construction vehicles.	Construction	EP		As part of all SDIA construction contracts, idling limits and low-emission vehicle and equipment requirements are set forth.

[36] Appendix B to the AB 32 2017 Scoping Plan provides examples of local actions that are organized into two categories: (A) local municipal code changes, zoning changes, or policy directions that could apply broadly to the community within the general plan or climate action plan area; and (B) mitigation measures that could be required of individual projects when the local jurisdiction is the lead agency. SDCRAA does not have authority over the City or County of San Diego's municipal codes, zoning codes, general plans, or climate action plans. As such, the potential mitigation measures included in this table are those that fall into the second category.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Require construction vehicles to operate with the highest tier engines commercially available.	Construction	EP		Standard language for SDIA agreements requires the use of low- and zero-emitting equipment during construction activities, whenever reasonably available, which would also be the case in implementation of the proposed project.
Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible.	Construction	EP		SDIA construction contracts include provisions that require recycling and reuse of construction and demolition materials, which would also be the case in implementation of the proposed project.
Minimize tree removal, and mitigate indirect GHG emissions increases that occur due to vegetation removal, loss of sequestration, and soil disturbance.	Construction	DF		The vast majority of the project site consists of existing buildings, apron areas, and pavement devoid of trees and other vegetation. The limited ornamental vegetation that would be removed by proposed project improvements would be replaced by new drought tolerant low water use vegetation. In addition, based on preliminary design of the proposed airport entry road, between zero and three of the 10 mature Mexican fan palm trees in the small open space (non-native grass landscaped) triangular Port parcel located between Laurel Street and North Harbor Drive, south of the Solar Turbines surface parking lot, may be impacted and require removal; the exact number of palm trees that may be impacted would be determined during final design plans for the proposed airport entry roadway. The SDCRAA would coordinate with the Port District during future detailed planning of the proposed airport entry roadway, including related to potential removal of palm trees, and replacement as required, in accordance with the Port's Tidelands Forestry Management Policy.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators.	Construction	EP DF		SDIA's operations are powered through a 12 kV electrical distribution system, which allows for the entire campus to be supported through one of four SDG&E substations. This redundancy in the electrical supply reduces the need to run generators on-site. All of the major facilities proposed as part of the project would be designed to connect to this 12 kV electrical system.
Increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available.	Construction	EP		Standard language for SDIA agreements requires the use of low- and zero-emitting equipment during construction activities, whenever reasonably available. While not prescriptive, the agreement requirement, as well as the new GSE Conversion Program, is envisioned to facilitate the transition to renewable diesel or other alternative fuel sources.
Require diesel equipment fleets to be lower emitting than any current emission standard.	Construction	EP		Standard language for SDIA agreements requires the use of low- and zero-emitting equipment during construction activities, whenever reasonably available.
Operation				
Comply with lead agency's standards for mitigating transportation impacts under SB 743.			Not Applicable	The SDCRAA does not have standards under SB 743. Implementation of the proposed project would, however, reduce vehicle miles traveled (VMT) in the future compared to future conditions without implementation of the project, as further described in Section 3.14 of this Recirculated Draft EIR.
Require on-site EV charging capabilities for parking spaces serving the project to meet jurisdiction-wide EV proliferation goals.	Motor Vehicles	EP MM-MM-AQ/GHG-6		SDIA currently has chargers for electric vehicles and electric GSE. Additionally, under MM-AQ/GHG-6, electric vehicle charging ports would be provided for three percent of new public parking stalls (another 3 percent would be "EVSE-ready").

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Allow for new construction to install fewer on-site parking spaces than required by local municipal building code, if appropriate.			Not Applicable	The City of San Diego parking requirements to not apply to SDIA.
Dedicate on-site parking for shared vehicles.	Motor Vehicles	EP MM-AQ/GHG-5		SDIA currently has preferential parking for carpool vehicles. The proposed project would, under MM-AQ/GHG-5, designate 10 percent of new parking stalls for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles.
Provide adequate, safe, convenient, and secure on-site bicycle parking and storage in multi-family residential projects and in non-residential projects.	Motor Vehicles	EP MM-AQ/GHG-9		SDIA currently provides for bicycle access and storage. Additional bicycle storage, as well as shower facilities, would, under MM-AQ/GHG-9, be provided with development of the proposed new Airport Administration Building.
Provide on- and off-site safety improvements for bike, pedestrian, and transit connections, and/or implement relevant improvements identified in an applicable bicycle and/or pedestrian master plan.	Motor Vehicles	EP DF MM-TDM-1 (see Section 3.14)		SDIA has been implementing a variety of programs to promote transit use as outlined in its 2016 Airport Transit Plan. In addition, the proposed project provides, as a design feature, for improvements related to bicycle, pedestrian, and transit connections, including a new all-electric shuttle service between SDIA and the Old Town Transit Center would be implemented as a component of MM-TDM-1.
Require on-site renewable energy generation.	Energy Use	EP MM-AQ/GHG-2		SDIA currently has 5.5 MW total of solar photovoltaic systems located on Terminal 2's surface parking lot and roof, as well as in the Employee Parking Lot off Pacific Highway. Approximately 85 percent of SDIA's current power purchases are from renewable energy resources, including 15 percent of photovoltaic solar energy from on-site generation and another 70 percent is grid-delivered photovoltaic solar from SDG&E's green tariff program called "EcoChoice". The EcoChoice program limits subscribers (including the Airport) to a 2 MW capacity. Operation of the T1 replacement terminal, which is part of the proposed project, would, under MM-AQ/GHG-2, be powered by 100 percent renewable energy resources through on-site generation, grid-delivered purchases, and/or renewable energy certificates.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Prohibit wood-burning fireplaces in new development, and require replacement of wood-burning fireplaces for renovations over a certain size developments.	Stationary	EP		SDCRAA does not, and will not, allow any wood-burning fireplaces at SDIA.
Require cool roofs and "cool parking" that promotes cool surface treatment for new parking facilities, as well as existing surface lots undergoing resurfacing.	Energy Use	MM-AQ/GHG-3		Implementation of the proposed project would, under MM-AQ/GHG-3, include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under 2016 California Green Building Standards Code.
Require solar-ready roofs.	Energy Use	EP DF		SDIA currently has over 5.5 MW of solar photovoltaic systems located on the Terminal 2 roof and parking lot, and on the surface parking lot in the northern portion of the Airport. In addition, the proposed project includes solar-ready roofs as a design component on all of the major proposed buildings.
Require organic collection in new developments.	Energy Use	EP DF MM-AQ/GHG-4		As part of its award-winning Sustainability Management Program, SDIA collects organic materials and sends them to the Miramar composting facilities. In addition to meeting strict waste management requirements as part of its LEED-Silver certification (or equivalent green rating certification) under MM-AQ/GHG-4, the proposed project's new facilities are being designed to accommodate organic and multiple other recycling waste streams.
Require low-water landscaping in new developments (see CALGreen Divisions 4.3 and 5.3 and the Model Water Efficient Landscape Ordinance [MWELO], which is referenced in CALGreen). Require water efficient landscape maintenance to conserve water and reduce landscape waste.	Energy Use	EP DF		SDIA has an extensive program for the replacement of water-intensive ornamental vegetation at the Airport with more sustainable drought tolerant vegetation and high-efficiency irrigation. Sustainable drought tolerant vegetation with high-efficiency irrigation would also be installed with new development associated with the proposed project. Additional measures for water conservation features related to landscaping are set forth in SDIA's Water Stewardship Plan (WSP). The WSP is available at www.san.org/green.

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
Achieve Zero Net Energy performance building standards prior to dates required by the Energy Code.	Energy Use	DF MM-AQ/GHG-4		As part of its minimum LEED-Silver certification, the proposed project would have to meet strict energy efficiency requirements. In addition, the proposed project includes an energy use intensity goal to guide the facilities' design and construction.
Encourage new construction, including municipal building construction, to achieve third-party green building certifications, such as the GreenPoint Rated program, LEED rating system, or Living Building Challenge.	Multiple	DF MM-AQ/GHG-4		The proposed T1 replacement building, new Airport Administration Building, and new parking structure would, under MM-AQ/GHG-4, be designed to meet at least LEED Silver (or equivalent green building rating) standards.
Require the design of bike lanes to connect to the regional bicycle network.	Motor Vehicles	EP DF		The SDIA is accessible for bicyclists via the Bayshore Bikeway, which is a regional bicycle corridor that extends 24 miles around San Diego Bay. In addition, the proposed project includes, as a design feature, a new multi-use pedestrian and bicyclist path along the north side of North Harbor Drive.
Expand urban forestry and green infrastructure in new land development.			Not Applicable	The highly developed and limited footprint of SDIA provides limited opportunity for the establishment of urban forestry and green infrastructure as part of the project. Moreover, the need to avoid establishment of vegetation that is a potential wildlife/bird attractant is a key safety consideration for minimizing the potential for aircraft bird strikes.
Require preferential parking spaces for park and ride to incentivize carpooling, vanpooling, commuter bus, electric vehicles, and rail service use.	Motor Vehicles	EP MM-AQ/GHG-5		SDIA currently has preferential parking for carpool vehicles. The proposed project would, under MM-AQ/GHG-5, further designate 10 percent of new parking stalls for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles.
Require a transportation management plan for specific plans which establishes a numeric target for non-SOV travel and overall VMT.	Motor Vehicles	EP MM-TDM-1 (see Section 3.14)	Not Applicable as Related to Specific Plans	The proposed project does not involve land use specific plans; however, the proposed project includes a Transportation Demand Management-focused mitigation measure, specifically MM-TDM-1, designed to reduce single-occupancy vehicle trips and overall VMT at SDIA. Additionally, the Old Town Transit Center-SDIA shuttle service included as a component of MM-TDM-1, which would serve to reduce such

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
				trips and VMT. These initiatives build off of the SDIA's existing programs to promote alternative transportation, as outlined in the 2016 Airport Transit Plan.
Develop a rideshare program targeting commuters to major employment centers.	Motor Vehicles	EP MM-AQ/GHG-10 MM-TDM-1 (see Section 3.14)		SDCRAA has achieved Gold-tier Diamond Award status in the regional iCommute San Diego Program.
Require the design of bus stops/shelters/express lanes in new developments to promote the usage of mass-transit.	Motor Vehicles	EP MM-AQ/GHG-10 MM-TDM-1 (see Section 3.14)		Under current operations, public transit buses are the only commercial transportation mode with direct access to the terminal curbside, as well as bus shelters located conveniently adjacent to terminal entrances/exits. In addition, the proposed project includes mitigation measures MM-AQ/GHG-10 and MM-TDM-1 to further support ridesharing for airport employees and to reduce overall transportation demand.
Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service isavailable.			Not Applicable	The project does not involve residential development.
Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.			Not Applicable	The project does not involve residential development.
Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage.			Not Applicable	The project does not involve residential development.
Require electric vehicle charging station (conductive/inductive) and signage for non-residential developments.	Motor Vehicles	EP DF MM-AQ/GHG-6		SDIA currently has chargers for electric vehicles and electric GSE, and a fuel storage tank for renewable diesel fuel. Additionally, as a design feature of the proposed project, each new aircraft gate would be equipped with four ports for charging of electric GSE, and under MM-AQ/GHG-6, electric vehicle charging ports would be provided for three percent of

Table 3.2-17: Review of Potential Measures for Reduction of Air Pollutants including Criteria Pollutants and Greenhouse Gases

Measure	Relevant Emission Source(s)	SDIA Existing Program (EP) ADP Design Feature (DF) ADP Mitigation Measure (MM)	Not Applicable or Impractical	Comment
				new public parking stalls (another three percent would be "EVSE-ready").
Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands.			Not Applicable	The project does not involve parks or parklands.
Require each residential unit to be "solar ready," including installing the appropriate hardware and proper structural engineering.			Not Applicable	The project does not involve residential development.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans.			Not Applicable	The project does not involve residential development.
Require each residential and commercial building equip buildings with energy efficient AC units and heating systems with programmable thermostats/timers.	Energy Use	EP DF		SDIA currently requires the installation of programmable thermostats/timers in new development at the Airport, which would also occur in implementation of the proposed project.
Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use.	Energy Use	EP		SDIA's Strategic Energy Plan establishes various goals and initiatives that are tracked to better understand and communicate the Airport's energy management. Annual energy use data, as well as 30 other key environmental social, and financial performance metrics, are then published in an online Sustainability Report, which is available at sustain.san.org.
Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets (see CALGreen Divisions 4.3 and 5.3, as well as Appendices A4.3 and A5.3).	Energy Use	EP DF		SDIA currently requires the installation of low flow water fixtures in new development at the Airport, which would also occur in implementation of the proposed project.

3.2.7.2.4 Significance of Impact After Mitigation

As can be seen in Table 3.2-14, the following emissions, even with mitigation, would exceed the applicable thresholds of significance:

- 2024 – NO_X
- 2026 – NO_X
- 2030 – NO_X
- 2035 – VOC, NO_X, and SO_X
- 2050 – VOC, NO_X, and SO_X

The results of the dispersion analysis with the mitigation measures indicate that levels of PM_{10} would also be above the annual CAAQS for this pollutant.

The air quality impacts associated with the above emissions and concentration are ***significant and unavoidable***.

3.2.7.3 Impact 3.2-3

Summary Conclusion for Impact 3.2-3: Construction of the proposed project in conjunction with other projects anticipated to be under construction during that same period would result in a *significant* impact relative to cumulative emissions, to which the proposed project's contribution to that significant impact would be *cumulatively considerable.* Operation of the proposed project at buildout in 2035 and in 2050 would result in a cumulatively considerable net increase of VOCs and NO_X which are precursors to O_3, for which the San Diego air basin is in nonattainment under federal and state ambient air quality standards. There would also be a net increase in CO and SO_X emissions. Because dispersion modeling demonstrated that the NO_X, CO, and SO_X operational emissions would not result in exceedances of the CAAQS or NAAQS for NO_2, CO, or SO_2, the increase would not be considered significant with respect to these regulated pollutants. However, the cumulatively considerable impact of VOC and NO_X is a *significant and unavoidable impact* with respect to O_3. Additionally, existing background concentrations of PM_{10} currently exceed state standards and there would be an increase in PM_{10} emissions associated with project operations. The increase is considered to be cumulatively considerable; this is a *significant and unavoidable impact.*

3.2.7.3.1 Construction

Chapter 4, Cumulative Impacts Analysis, describes numerous proposed development projects identified by Civic San Diego, the City of San Diego, and the Port of San Diego that are located in the general vicinity of SDIA and have construction schedules that could overlap with the 2020-2035 construction program of the proposed project. Based on the information presented in Table 4-2, Civic San Diego and City of San Diego Cumulative Projects, and Table 4-3, Port of San Diego Master Plan Update: Development Potential, in Chapter 4, the following summarizes the nature and

amount of cumulative development that could occur in the near-term (i.e., 0 to 10 years) and long-term (i.e., 10-30 years):[37]

- Near-Term (0-10 years) Development
  - Hotel Rooms: 5,972*
  - Residential Units: 1,564
  - Retail, Restaurant, and Commercial: 986,450 square feet*
  - Office: 2,277,000 square feet
  - SDIA Air Cargo Warehouse Facilities: 225,000 square feet
  - SDIA Additional Fuel Tanks Project
- Long-Term (10-30 years) Development
  - Hotel Rooms: 6,350*
  - Retail, Restaurant, and Commercial: 721,750 square feet*

Note: * For cumulative projects in Table 4-2 of Chapter 4, the only projects with construction periods that are assumed to overlap that of the proposed project are the Pacific and Broadway Parcel 1 Project, the AC Hotel, and Manchester Pacific Gateway (Navy Broadway Complex). Hotel rooms and retail/restaurant/commercial development associated with the Port of San Diego Master Plan Update are presented above in terms of the mid-points between the low range and high range for each type use indicated in Table 4-3 of Chapter 4.

Based on the nature and amounts of cumulative development summarized above, Table 3.2-18 presents the estimated cumulative construction-related emissions inventory in terms of average annual tons and average daily pounds of emissions for the near-term cumulative projects and for the long-term cumulative projects, which were estimated using CalEEMod, Version 2016.3.2.

[37] As discussed in Chapter 4, Cumulative Impacts Analysis, on May 6, 2019, the Port of San Diego sent SDCRAA a letter with an updated list of development assumptions for the Port Master Plan Update (PMPU). This list reflects a refinement to information previously provided and depicted in Table 4.3 in the 2018 Draft EIR. The land use assumptions are generally consistent with the ranges of development intensity included in the Year 2050 regional travel forecast model refinements. Since the PMPU land use intensities are still being vetted through a public review process prior to Port Commissioners' acceptance and were not included in joint Port/SDCRAA modeling, no further refinements to the cumulative air quality section are needed.

Table 3.2-18: Cumulative Projects Construction Emissions Inventory

	Average Annual Amount of Pollutants (tons/year)						Average Daily Amounts of Pollutant (pounds/day)					
	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
Near-Term Cumulative Projects	23	37	9	3	33	<1	172	271	66	21	236	1
Proposed Project[1]	3	16	10	1	13	<1	1	7	3	<1	13	<1
Total	26	53	19	4	46	<1	173	278	69	21	249	1
Threshold of Significance	***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Any Exceedance of Threshold?	Yes	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No
Long-Term Cumulative Projects	7	16	6	2	17	<1	54	111	41	12	90	<1
Proposed Project[a]	1	7	3	<1	13	<1	4	39	16	2	71	<1
Total	8	23	9	<3	30	<1	58	150	57	14	161	<1
Threshold of Significance	***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Any Exceedance of Threshold?	No	No	No	No	No	No	No	No	No	No	No	No

Source: CDM Smith, 2019.
Note:
1. Proposed project construction emissions assumed to be the peak for each pollutant during the 10-year period.

Based on the information presented in Table 3.2-18, the total amounts of air pollutant emissions associated with construction of the near-term cumulative projects would exceed the thresholds of significance for all pollutants except $PM_{2.5}$, CO, and SO_x, but would be below the thresholds of significance for all pollutants associated with the long-term cumulative projects. As such, the cumulative impact to air quality would be ***significant***. Based on the relative amount of contribution to the significant emissions of NO_x and PM_{10}, the proposed project's contribution to the NO_x and PM_{10} significant impact is considered to be ***cumulatively considerable***.

3.2.7.3.2 Operation

Table 3.2-19 presents the estimated operational emissions for short-term and long-term cumulative projects. It should be noted that the emissions of the cumulative projects, other than the proposed project, are conservative in that they are based solely on the proposed uses and do not account for elimination of emissions from existing uses that would be replaced by the proposed uses. The majority of the non-ADP cumulative development accounted for in the Table 3.2-19 emissions estimates are associated with the draft Port Master Plan Update, which sets forth potential future development ranges for various land use types on a short-term and long-term basis; however, it is SDCRAA's understanding that specific existing uses to be replaced by potential future development have not yet been identified.

Table 3.2-19: Cumulative Projects Operational Emissions Inventory

	Average Annual Amount of Pollutants (tons/year)						Average Daily Amounts of Pollutant (pounds/day)					
	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X	VOCs	NO_X	PM_{10}	$PM_{2.5}$	CO	SO_X
Near-Term Cumulative Projects	188	104	90	39	344	1	1,032	572	493	212	1,886	6
Proposed Project[1]	23	447	3	<1	325	33	127	2,447	18	<1	1,782	181
Total	211	551	93	39	669	34	1,159	3,109	511	212	3,668	187
Threshold of Significance	***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Any Exceedance of Threshold?	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Long-Term Cumulative Projects	62	72	47	14	120	<1	342	393	259	79	656	3
Proposed Project[2]	42	804	4	<1	141	66	231	4,406	20	<1	775	362
Total	104	876	51	14	261	66	573	4,799	279	79	1,431	365
Threshold of Significance	***13.7***	***40***	***15***	***10***	***100***	***40***	***75***	***250***	***100***	***55***	***550***	***250***
Any Exceedance of Threshold?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: CDM Smith, 2019.
Notes:
1. For Near-Term Cumulative Projects, the 2030 ADP operational emissions (without construction) increase over 2018 are assumed.
2. For Long-Term Cumulative Projects, the 2050 ADP operational emissions (without construction) increase over 2018 are assumed.

As indicated in Table 3.2-19, emissions associated with operations of near-term cumulative development would exceed the thresholds of significance for all criteria pollutants, except SO_X, and emissions associated with long-term cumulative development would exceed the thresholds of significance for all criteria pollutants. These exceedances include VOCs and NO_X, which are precursors to O_3, for which the San Diego air basin is in nonattainment under federal and state ambient air quality standards. Additionally, emissions of PM_{10}, for which concentrations in the San Diego air basin exceed the CAAQS, also are significant. As such, the cumulative air quality impacts associated with operational emissions would be ***significant***. Based on the proposed project's contribution to the emissions for those pollutants, the proposed project would have a ***cumulatively considerable*** contribution.

3.2.7.3.3 Mitigation Measures

As described above in Section 3.2.7.2.3, the proposed project includes numerous features and improvements, as well as several mitigation measures (specifically, MM-AQ/GHG-1 through MM-AQ/GHG-10, as well as MM-TDM-1 [see Section 3.14]), that serve to reduce future emissions; however, there are no other feasible mitigation measures available to reduce aircraft emissions, which are the primary source of VOC and NO_X emissions.

3.2.7.3.4 Significance of Impact After Mitigation

As indicated above, there are no feasible mitigation measures, other than MM-AQ/GHG-1 through MM-AQ/GHG-10 and MM-TDM-1, available for operations-related emissions; hence, the proposed project's cumulatively considerable air quality impact would be ***significant and unavoidable***.

3.2.7.4 Impact 3.2-4

Summary Conclusion for Impact 3.2-4: Implementation of the proposed project would not expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations. As such, the proposed project would have a *less than significant impact*, as further described below.

3.2.7.4.1 Construction

There are no sensitive receptors including, but not limited to, homes, schools, hospitals, resident care facilities, or day-care centers, located near the proposed project site. The closest sensitive receptors are residential land uses located approximately 2,400 feet west of the western edge of the project area (i.e., the western edge of the proposed T2-West modification [Stinger]), and the closest residential land uses east of project site are located approximately 3,000 feet east of the eastern edge of the project area (i.e., the eastern edge of the proposed Taxiways A and B extension/relocation). Construction activities associated with the proposed project would not occur near sensitive receptors; therefore, construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations and construction would have a ***less than significant impact***.

3.2.7.4.2 Operation

On-airport activities and operations would not be located near sensitive receptors; however, future increases in local traffic, to which the proposed project would contribute, could result in increased concentrations of CO from vehicle exhaust around busy intersections in the local area. Sensitive receptors located near such intersections, particularly congested intersections, could be exposed to substantial concentrations of CO. To evaluate that potential impact, a "CO Hot Spots" analysis was completed based on the guidelines set forth in the County of San Diego's *Guidelines for Determining Significance and Report Format and Content Requirements*. The analysis focused on signalized intersections with peak-hour trips exceeding 3,000 that have sensitive receptors located within 500 feet and, as a result of increases in future traffic, would cause such an intersection to operate at or below a Level of Service (LOS) E. Of the 43[38] intersections located with the traffic impacts study area described in Section 3.14, the following 12 intersections met those criteria:

- Intersection 7 – San Diego Avenue and Washington Street
- Intersection 10 –Kettner Boulevard and Sassafras Street
- Intersection 16 – Laurel Street and Kettner Boulevard
- Intersection 20 – Hawthorn Street and Kettner Boulevard

[38] The intersections included in the traffic impacts study area are numbered 1 through 12 and 14 through 44; there is no intersection listed/identified as intersection 13.

- Intersection 21 – Hawthorn Street and India Street
- Intersection 22 – Hawthorn Street and Columbia Street
- Intersection 23 – Hawthorn Street and State Street
- Intersection 24 – I-5 NB Offramp/Brandt and Hawthorn Street
- Intersection 27 – Grape Street and Kettner Boulevard
- Intersection 28 – Grape Street and India Street
- Intersection 29 – Grape Street and Columbia Street
- Intersection 30 – Grape Street at State Street/ I-5 SB Ramp

Each intersection was modeled for 2050 With Project conditions to determine whether emissions of CO, when totaled with ambient concentrations, would exceed a 1-hour concentration of 20 ppm or an 8-hour average of 9 ppm, which reflect the CAAQS and are more restrictive than the NAAQS. The results of the CO hot spots analysis are presented in Table 3.2-20 below.

Table 3.2-20: Carbon Monoxide Hot Spot Analysis

		Traffic CO Conc. (ppm)[1]		Max. Conc. (ppm)		Significant?	
		1-Hour	8-Hour	1-Hour[2]	8-Hour[3]	1-Hour[4]	8-Hour[5]
7	San Diego Ave & Washington St	0.20	0.14	1.80	1.54	No	No
10	Kettner Blvd & Sassafras St	0.20	0.14	1.80	1.54	No	No
16	Laurel St & Kettner Blvd	0.40	0.28	2.0	1.68	No	No
20	Hawthorn St & Kettner Blvd	0.20	0.14	1.80	1.54	No	No
21	Hawthorn St & India St	0.20	0.14	1.80	1.54	No	No
22	Hawthorn St & Columbia St	0.30	0.21	1.90	1.61	No	No
23	Hawthorn St & State St	0.30	0.21	1.90	1.61	No	No
24	I-5 NB Offramp/Brandt & Hawthorne St	<0.01	<0.01	1.60	1.40	No	No
27	Grape Street & Kettner Blvd	0.30	0.21	1.90	1.61	No	No
28	Grape St & India St	0.20	0.14	1.80	1.54	No	No
29	Grape St & Columbia St	0.30	0.21	1.90	1.61	No	No
30	Grape St & State St	0.20	0.14	1.80	1.54	No	No

Source: CDM Smith, 2019.
Notes:
1. Traffic CO concentration from CAL3QHC model output.
2. Maximum CO concentration is traffic CO plus 1-hour background concentration of 1.60 ppm.
3. Maximum CO concentration is traffic CO plus 8-hour background concentration of 1.40 ppm.
4. 1-Hour Standards: CAAQS 20 ppm NAAQS 35 ppm
5. 8-Hour Standards: CAAQS 9 ppm NAAQS 9 ppm

As indicated above, there would be no exceedance of the state or federal CO standards; therefore, the proposed project would have a ***less than significant impact.***

See also Section 3.4, Human Health Risk, for discussion regarding potential impacts related to toxic air contaminants.

3.2.7.4.3 Mitigation Measures

No mitigation is required.

3.2.7.4.4 Significance of Impact After Mitigation

As indicated above, no mitigation is needed relative to this impact. The proposed project would result in a ***less than significant impact*** for construction and operations.

3.2.7.5 Impact 3.2-5

Summary Conclusion for Impact 3.2-5: Construction and operation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. As such, implementation of the proposed project would result in a *less than significant impact*, as further described below.

3.2.7.5.1 Construction

During construction of the proposed project, exhaust from equipment and activities associated with the application of architectural coatings and other interior and exterior finishes may produce discernible odors typical of most construction sites. Such odors could be a source of nuisance to adjacent uses, but would be temporary, intermittent and not adversely affect a substantial number of people. Moreover, there are no sensitive uses relative to potential odor impacts located near the project-related construction areas. The closest residential land uses east of project site are located approximately 3,000 feet east of the eastern edge of the project area (i.e., the eastern edge of the proposed Taxiways A and B extension/relocation). The closest residential land uses west of project site are located approximately 2,400 feet west of the western edge of the project area (i.e., the western edge of the proposed T2-West modification [Stinger]). These distances are generally too great for odors to travel.

Based on the above, construction of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people; hence, such construction would have a ***less than significant impact***.

3.2.7.5.2 Operation

In general, operation of SDIA is not a notable source of odors adversely affecting a substantial number of people. The smell of aircraft engine exhaust is discernible at and around SDIA from time to time, depending largely on meteorological conditions such as wind speed and direction, which some people find to be objectionable. For the most part, however, coastal breezes typical of the local area and the fact that aircraft operations occur primarily in the central portion of SDIA away from surrounding uses serve to minimize occurrences, when the smell of aircraft engine exhaust is discernable at all, let alone discernable to a substantial number of people.

Aircraft activity at SDIA is projected to increase over the course of implementing the proposed project through buildout in 2035 and through 2050, although such increase in aircraft activity

would occur irrespective of the proposed project. Aircraft operations in 2050 are projected to be approximately 29 percent greater than the number of operations associated with existing (2018 baseline) conditions. That increase would not substantially increase aircraft exhaust emissions such that odors would adversely affect a substantial number of people, especially given the aforementioned effect of coastal breezes dispersing aircraft emissions and the fact that the main aircraft operations areas are located near the center of SDIA away from surrounding uses.

As previously stated, the air pollutant NO_2 has an irritating odor (in high concentrations). Although emissions of this pollutant are forecast to increase through buildout in 2035, which one could assume would also increase odors, a dispersion analysis that was performed to evaluate ambient concentrations of the pollutant demonstrates that emissions would not exceed the NAAQS or CAAQS with the proposed improvements. Further, because the level of NO_X/NO_2 would be less with the proposed improvements, one could conclude that odors would also be less.

Based on the above, operation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people; hence, such operation would have a ***less than significant impact***.

3.2.7.5.3 Mitigation Measures

No mitigation is required.

3.2.7.5.4 Significance of Impact After Mitigation

As indicated above, no mitigation is needed relative to this impact. The proposed project would result in a ***less than significant impact*** for construction and operations.

3.2.8 Summary of Impact Determinations

Table 3.2-21 summarizes the impact determinations of the proposed project related to air quality, as described above in the detailed discussion in Section 3.2.7. Identified potential impacts are based on the significance criteria presented in Section 3.2.6, the information and data sources cited throughout Section 3.2, and the professional judgment of the report preparers, as applicable.

Table 3.2-21: Summary Matrix of Potential Impacts and Mitigation Measures Associated with the Proposed Project Related to Air Quality

Air Quality Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Impact 3.2-1: Implementation of the proposed project would not conflict with or obstruct implementation of the Regional Air Quality Strategy (RAQS) for San Diego County or applicable portions of a SIP. As such, this would be a *less than significant* impact.	Construction: Less than Significant Operation: Less than Significant	No mitigation is required	Construction: Less than Significant Operation: Less than Significant

Table 3.2-21: Summary Matrix of Potential Impacts and Mitigation Measures Associated with the Proposed Project Related to Air Quality

Air Quality Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Impact 3.2-2: Implementation of the proposed project would exceed the screening-level emissions thresholds for certain criteria pollutants, which would be a *significant and unavoidable impact*. **With the exception of PM_{10}, concentrations of criteria pollutants would not exceed state or federal standards and, therefore, would result in a *less than significant impact,* relative to those pollutants. However, existing background concentrations of PM_{10} currently exceed state standards and the increase in PM_{10} concentrations associated with project operations would increase that existing exceedance. As such, the project's concentration-based impact associated with PM_{10} would be a *significant and unavoidable impact.***	Construction: Less than Significant Operation: Significant Impact	MM-AQ/GHG-1 through MM-AQ/GHG-10 MM-TDM-1: TDM and Transit Measures (See Section 3.14)	Construction: Less than Significant Operation: Significant and Unavoidable
Impact 3.2-3: Construction of the proposed project in conjunction with other projects anticipated to be under construction during that same period would result in a significant impact relative to cumulative emissions, to which the proposed project's contribution to that significant impact would be cumulatively considerable. Operation of the proposed project at buildout in 2035 and in 2050 would result in a cumulatively considerable net increase of VOCs and NO_X which are precursors to O_3, for which the San Diego air basin is in nonattainment under federal and state ambient air quality standards. There would also be a net increase in CO and SO_X emissions. Because dispersion modeling demonstrated that the NO_X, CO, and SO_X emissions would not result in exceedances of the CAAQS or NAAQS for NO_2, CO, or SO_2, the increase would not be considered significant with respect to these regulated pollutants. However, the cumulatively considerable impact of VOC and NO_X is a *significant and unavoidable impact* with respect to O_3. Additionally, existing background concentrations of PM_{10} currently exceed state standards and there would be an increase in PM_{10} emissions associated with project operations. The increase is considered to be cumulatively considerable; this is a *significant and unavoidable impact*.	Construction: Significant Impact Operation: Significant Impact	MM-AQ/GHG-1 through MM-AQ/GHG-10 MM-TDM-1: TDM and Transit Measures (See Section 3.14)	Construction: Significant and Unavoidable Operation: Significant and Unavoidable

Table 3.2-21: Summary Matrix of Potential Impacts and Mitigation Measures Associated with the Proposed Project Related to Air Quality

Air Quality Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
Impact 3.2-4: Implementation of the proposed project would not expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations. As such, the proposed project would have a *less than significant impact.*	Construction: Less than Significant Operation: Less than Significant	No mitigation is required	Construction: Less than Significant Operation: Less than Significant
Impact 3.2-5: Construction and operation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. As such, implementation of the proposed project would result in a *less than significant impact.*	Construction: Less than Significant Operation: Less than Significant	No mitigation is required	Construction: Less than Significant Operation: Less than Significant

3.2.8.1 Mitigation Measures

MM-AQ/GHG-1 **Ground Support Equipment Conversion:** All baggage tugs, belt loaders, lifts, pushback tractors, and utility carts at SDIA that are owned and operated by airlines and their ground handling contractors to service aircraft, shall be transitioned to alternative fuels (i.e., electric, natural gas, renewable diesel, biodiesel) by 2024.

Additionally, by 2024, 50 percent of gasoline-fueled GSE that are light duty vehicles owned and operated by SDCRAA would be replaced with hybrid electric vehicles and, by 2030, the remaining 50 percent of the fleet would be replaced with hybrid electric. This measure is considered feasible.

MM-AQ/GHG-2 **Renewable Electricity:** Project-related buildings shall be powered by 100 percent renewable electricity by 2024 and continuing thereafter through on-site generation resources, grid-delivered purchases, and/or renewable energy certificates. This measure is considered feasible**.**

MM-AQ/GHG-3 **Cool Roof:** The project shall include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under 2016 California Green Building Standards Code. This measure is considered feasible**.**

MM-AQ/GHG-4 **LEED Silver Certification:** The project shall demonstrate achievement of at least LEED Silver certification (or equivalent green rating certification) for all new major facilities, such as a new terminal, a new parking structure, or new SDCRAA administration building. This measure is considered feasible**.**

MM-AQ/GHG-5 **Clean Vehicle Parking:** The project shall designate 10 percent of new parking stalls for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles. This measure is considered feasible**.**

MM-AQ/GHG-6 Electric Vehicle Chargers: The project shall install electric vehicle charging ports at three percent of new parking stalls and another three percent would be "EVSE-ready". This measure is considered feasible.

MM-AQ/GHG-7 Ground Transportation Clean Vehicle Program: In conjunction with the project, SDIA's current Commercial Ground Transportation Clean Vehicle Program shall be extended past 2020 with the goal that commercial operator fleets achieve an average GHG rating of 10 (0-204 gCO_2/mile) by 2030 as scored by fueleconomy.gov (or an equivalent program). This measure is considered feasible.

MM-AQ/GHG-8 Electric On-Airport Shuttles: In conjunction with the project, on-airport shuttles serving passenger and employee parking lots, and inter-terminal transfers shall be transitioned to electric vehicles (all-electric or plug-in hybrid) by 2026. The buses serving the Rental Car Center shall be transitioned to electric vehicles by 2028. This measure is considered feasible.

MM-AQ/GHG-9 Bicycle Facilities: To facilitate active transportation commuting, the project shall install shower stalls and lockers in the new Airport Administration Building and in the new terminal building based on the number of employees and guidance provided in the City of San Diego's Climate Action Plan Consistency Checklist (estimated at 7 shower stalls and 25 lockers total). In addition, covered bicycle storage shall be installed for SDCRAA and tenant employees based on non-public square footage and guidance provided in the City of San Diego's Climate Action Plan Consistency Checklist (estimated at 50 bike spaces total). This measure is considered feasible.

MM-AQ/GHG-10 Employee Parking Cash-Out Program: SDCRAA shall implement a parking cash-out program for its employees. This measure is considered feasible.

3.2.9 Significant Unavoidable Impacts

Construction of the proposed project would in itself result in a ***less than significant impact;*** however, it would have a ***cumulatively considerable*** contribution to a ***significant unavoidable impact*** related to cumulative emissions. Operation of the proposed project would result in ***significant unavoidable impacts*** relative to the following:

Emissions

- 2024 – NO_X
- 2026 – NO_X
- 2030 – NO_X
- 2035 – VOC, NO_X, and SO_X
- 2050 – VOC, NO_X, and SO_X

Concentrations

- PM_{10}