

## Section 3.3

# Greenhouse Gases and Climate Change

### 3.3.1 Introduction

This section analyzes the proposed project's impacts from both construction and operational activities as related to greenhouse gas (GHG) emissions and global climate change (GCC). Included in this section is an overview of GCC and GHG emissions and a description of the approach, methodologies, and models used in the analysis to estimate GHG emissions associated with the proposed project. Relevant information pertaining to the regulatory framework, plans, and policies adopted to reduce GHG emissions also is discussed, as are features incorporated into the proposed project to reduce GHG emissions.

Comments in response to the NOP specific to potential impacts related to GHG emissions and GCC were received from the following agencies and individuals:

- The City of San Diego commented that the EIR should include an analysis of the proposed project's potential impacts associated with GHG emissions, pursuant to the State CEQA Guidelines and the City's Significance Thresholds.
- The City of San Diego and oral comments provided during scoping meetings noted that the EIR should include an analysis of the proposed project's consistency with the City's Climate Action Plan (CAP).
- Oral comments provided during scoping meetings suggested that the proposed project would cause an increase in GHG emissions and that SDCRAA and the Federal Aviation Administration (FAA) should consider GHG emission offsets.
- The U.S. Environmental Protection Agency (USEPA) noted SDCRAA's participation in regional planning efforts focused on projected climate change impacts, including sea level rise, and commented that the updated sea level rise projections should be considered in planning efforts.
- The San Diego Unified Port District commented that the EIR should consider the impacts and benefits of the proposed Intermodal Transportation [Transit] Center (ITC) on reducing vehicle miles traveled (VMT), level of service, and GHG emissions.
- Comments were received from several agencies and members of the public recommending the proposed project encourage and support alternative transportation.

All written and oral comments received during the NOP process are provided in Appendix R-A. Comments received specific to GHG emissions and climate change impacts associated with the proposed project are addressed within this section of the EIR. The subject of sea level rise is addressed below, as well as in Section 3.11, Land Use and Planning. Alternative transportation is

addressed herein relative to GHG emissions and addressed further in Section 3.14, Traffic and Circulation. Also, the ITC is not a part of the proposed project, but is addressed in Chapter 4, Cumulative Impacts Analysis.

## 3.3.2 Overview of Global Climate Change and Greenhouse Gases

### 3.3.2.1 Global Climate Change (GCC)

Briefly stated, GCC is a change in the average climatic conditions of the earth, as characterized by changes in wind patterns, storms, precipitation, and temperature. The baseline by which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. These data are used to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) developed several GHG emission projections to stabilize global temperatures and climate change impacts. The IPCC predicted that the global mean temperature change from 2005 to 2100, given six ambient carbon dioxide (CO<sub>2</sub>) scenarios, could range from 1.5 to 4.8 degrees Celsius (C). Regardless of analytical methodology, global average temperature and mean sea level are expected to rise under all scenarios.<sup>1</sup>

Climate models applied to California's conditions project that, under different climate scenarios, temperatures in California are expected to increase by 2.1 to 8.6 degrees Fahrenheit (F), before 2100. Almost all climate scenarios include a continuing trend of warming through the end of the century given the substantial amounts of GHGs already released, and the difficulties associated with reducing emissions to a level that would stabilize the climate. According to the 2012 Report from the California Climate Change Center, the following climate change effects are predicted in California over the course of the next century.<sup>2</sup>

- A diminishing Sierra snowpack that threatens the state's water supply, reduces generation of hydroelectric power, and increases the probability of wildfires along electrical transmission line corridors.
- Increasing temperatures, as noted above, of up to approximately 9 degrees F under the higher emission scenarios, leading to increases in the number of days when ozone pollution levels are exceeded in most urban areas.

<sup>1</sup> Intergovernmental Panel on Climate Change. Climate Change 2014 – Mitigation of Climate Change. Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. 2014. p. 439. Available: <https://www.ipcc.ch/report/ar5/syr/>.

<sup>2</sup> California Climate Change Center. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. Available: <http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf>.

- Coastal erosion along the length of California and sea water intrusion into the Sacramento-San Joaquin River Delta caused by the rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and fires caused by increased temperatures.
- Increased challenges for the state's agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Sacramento-San Joaquin River Delta.
- Increased electricity demand, particularly in the hot summer months.

In summary, temperature increases are expected to lead to adverse environmental impacts in a wide variety of areas, including: sea level rise, reduced snowpack resulting in changes to existing water resources, increased risk of wildfires, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality.

### 3.3.2.2 Greenhouse Gases

Parts of the Earth's atmosphere act as an insulating blanket, trapping sufficient solar energy to keep the global average temperature in a suitable range. The blanket is a collection of atmospheric gases called GHGs. Many GHGs occur naturally in the atmosphere, such as CO<sub>2</sub>, methane (CH<sub>4</sub>), water vapor, and nitrous oxide (N<sub>2</sub>O), while others are synthetic. Those that are man-made include the chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs), as well as sulfur hexafluoride (SF<sub>6</sub>). These gases all act as effective global insulators, reflecting back to earth visible light and infrared radiation. Human activities, such as producing electricity and driving vehicles, have elevated the concentrations of these gases in the atmosphere. Many scientists believe that these elevated levels, in turn, are causing the earth's temperature to rise. As discussed above, a warmer earth may lead to changes in rainfall patterns, much smaller polar ice caps, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans.

The global warming potential (GWP) of each GHG is "[a] measure of the total energy that a gas absorbs over a particular period of time (usually 100 years), compared to carbon dioxide."<sup>3</sup> Individual GHGs have varying GWP and atmospheric lifetimes. The carbon dioxide equivalent (CO<sub>2</sub>e) – the mass emissions of an individual GHG multiplied by its GWP – is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is CO<sub>2</sub>, which has a GWP of 1. Compared to CH<sub>4</sub>'s GWP of 28, CH<sub>4</sub> has a greater global warming effect than CO<sub>2</sub> on a molecule-per-molecule basis. Table 3.3-1 identifies the GWP of several select GHGs.

<sup>3</sup> U.S. Environmental Protection Agency. Glossary of Climate Change Terms. Available: [https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms\\_.html](https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html).

**Table 3.3-1: Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases**

| Gas                                                   | Atmospheric Lifetime (Years) | Global Warming Potential (100 Year Time Horizon) |
|-------------------------------------------------------|------------------------------|--------------------------------------------------|
| Carbon Dioxide CO <sub>2</sub>                        | 50-200                       | 1                                                |
| Methane (CH <sub>4</sub> )                            | 15                           | 28                                               |
| Nitrous Oxide (N <sub>2</sub> O)                      | 114                          | 265                                              |
| HFC-23                                                | 270                          | 12,400                                           |
| HFC-134a                                              | 14                           | 1,300                                            |
| HFC-152a                                              | 1.4                          | 138                                              |
| PFC: Perfluoromethane (CF <sub>4</sub> )              | 50,000                       | 6,630                                            |
| PFC: Perfluoroethane (C <sub>2</sub> F <sub>6</sub> ) | 10,000                       | 11,100                                           |
| Sulfur Hexafluoride (SF <sub>6</sub> )                | 3,200                        | 23,500                                           |

Source: Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

In estimating GHG emissions, the GHG Protocol Corporate Accounting and Reporting Standard (GHG Protocol), developed by the World Business Council for Sustainable Development and World Resources Institute, provides standards and guidance for preparing a GHG emissions inventory, written primarily from the perspective of a business developing such inventory.<sup>4</sup> The GHG Protocol provides the accounting framework for nearly every GHG standard and program in the world, from the International Standards Organization to the European Union Emissions Trading Scheme to The Climate Registry (Registry), as well as hundreds of GHG inventories prepared by individual companies.

The GHG Protocol divides GHG emissions into three types of “scopes,” ranging from GHGs produced directly by the business to more indirect sources of GHG emissions, such as employee travel and commuting. Direct and indirect emissions can be generally separated into three broad scopes as follows:

- Scope 1. All direct GHG emissions.
- Scope 2. Indirect GHG emissions from consumption of purchased electricity, heat, or steam (i.e., GHG emissions generated at the power plant that provides electricity at the demand of the site/facility).

<sup>4</sup> World Business Council for Sustainable Development and World Resources Institute. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition. March 2004. Available: <http://ghgprotocol.org/sites/default/files/ghgp/standards/ghg-protocol-revised.pdf>.

- Scope 3. Other indirect (optional) GHG emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses) not covered in Scope 2, outsourced activities, waste disposal, and construction.

The Airports Council International (ACI) has an Airport Carbon Accreditation (ACA) program that evaluates an airport's GHG emissions according to similar principles. The ACA program began in 2009 as part of the Airports Council International Europe Annual Congress, and accreditation requires a rigorous inventory and verification process. To apply for certification, airports must have their carbon footprints independently verified in accordance with ISO 14064 (Greenhouse Gas Accounting). Evidence of carbon footprints must be provided to the administrator together with carbon management process claims, which must also be independently verified.

To support the certification with ACA, the SDCRAA has recently built highly energy-efficient facilities (such as its Rental Car Center), installed solar energy panels on terminal and parking lot roofs, converted 100 percent of its shuttle fleet to alternative fuels, and launched "The Good Traveler" carbon offset program to enable passengers to reduce the environmental impact of their travel. Currently, SDIA is certified through ACA at "Level 3," which means the SDCRAA is actively implementing a carbon management plan and has reduced emissions under its direct control, and also is effectively partnering with airlines, concessions, and ground transportation operators to help them lower their emissions at SDIA. The SDCRAA has established a goal to achieve "Level 3+" certification by 2022, which requires continued carbon emission reductions as well as offsetting of its remaining Scope 1 and 2 emissions, thereby achieving carbon neutral operations for all direct and indirect emissions over which the SDCRAA has control.

### 3.3.3 General Approach and Methodology

The overall approach to this analysis was to estimate GHG emissions for SDIA under existing (2018 baseline) and future-year conditions. The analysis was conducted according to the methodology outlined in the *SAN Master Plan Update, Air Quality Assessment Protocol*.<sup>5</sup> The Airport Cooperative Research Program (ACRP) Report 11 – *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories*<sup>6</sup> was also used along with appropriate models and databases from the USEPA, FAA, and California Air Resources Board (CARB). Additional information regarding the analysis approach and assumptions is summarized below, with relevant details provided in Appendix R-C.

#### Construction Emissions

Construction-related GHG emissions were estimated over the proposed project's 15-year construction period (i.e., approximately 2020/2021 through 2035) and included emissions from on-road and off/non-road vehicles and equipment. Construction emissions were estimated based

<sup>5</sup> CDM Smith and KB Environmental Sciences, Inc. SAN Master Plan Update, Environmental Impact Report / Environmental Assessment (EA), Air Quality Assessment Protocol. Prepared for the San Diego County Regional Airport Authority and the Federal Aviation Administration. July 2019.

<sup>6</sup> Transportation Research Board of the National Academies. Airport Cooperative Research Program (ACRP) Report 11: Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories. 2009. Available: <http://www.trb.org/Publications/Blurbs/160829.aspx>.

on the proposed project’s development phasing (i.e., Phases 1a, 1b, 2a, and 2b) and modeled with the *Airport Construction Emissions Inventory Tool* (ACEIT), which specifies the characteristics for on- and off/non-road construction vehicles, equipment, and supporting activities associated with airport construction projects.<sup>7</sup> Project-specific details were used in the ACEIT to estimate construction equipment/vehicles activity (e.g., equipment mixes/operating times). Because the default emission factors used by the ACEIT do not reflect regulatory conditions within California, construction-related emission factors were instead developed using the CARB’s *EMFAC2017* (on-road vehicles) and *OFFROAD2017* (off/non-road equipment) models. Additional detail regarding the methodology used to estimate emissions from construction activities is provided in Appendix R-C-1 (see Section 3.5 entitled “Construction Activities”).

## Operational Emissions

Operational GHG emissions were calculated for the years 2018, 2024, 2026, 2030, and 2035. The year 2050 was also analyzed for long-range planning purposes. Operational emissions from aircraft and auxiliary power units (APUs), ground support equipment (GSE), stationary sources (e.g., boilers, emergency generators, etc.), and motor vehicles were computed.

### Aircraft-Related

Emissions from aircraft engine, APUs, and GSE were based on fuel usages and were derived using the FAA’s *Aviation Environmental Design Tool* (AEDT, Version 2d).<sup>8</sup> GSE emission factors were obtained from CARB’s *OFFROAD2017* model.<sup>9</sup> Aircraft engine and APU emission factors were fuel-based and derived from the USEPA’s *Center for Corporate Climate Leadership GHG Emission Factors Hub*.<sup>10</sup> 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 FAA’s *Aviation Emissions and Air Quality Handbook*,<sup>11</sup> the analysis assumed APU usage for the passenger-related aircraft was 7 minutes. For all other aircraft, APU run times were assumed to be AEDT defaults. For the modeling of the existing (i.e., 2018) condition, GHG emission levels resulting from the operation of GSE, based on SDIA-specific GSE fleet data, was used. Additional details regarding the assumptions used to estimate the aircraft-related GHG emissions are provided in Appendix R-C-1, specifically Section 3.1.

### Stationary Sources

Stationary sources GHG emissions were based on existing and proposed annual fuel usage and/or throughputs. GHGs emission factors were derived from USEPA’s *Center for Corporate Climate*

<sup>7</sup> 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.

<sup>8</sup> U.S. Department of Transportation, Federal Aviation Administration. Aviation Environmental Design Tool (AEDT) Version 2d. Available: <https://aedt.faa.gov/>.

<sup>9</sup> California Air Resources Board. 2017 Inventory Model for In-Use Off-Road Equipment. Available: [http://www.arb.ca.gov/msei/categories.htm#offroad\\_motor\\_vehicles](http://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles).

<sup>10</sup> U.S. Environmental Protection Agency. Center for Corporate Climate Leadership GHG Emission Factors Hub. March 2018. Available: <https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub>.

<sup>11</sup> U.S. Department of Transportation, Federal Aviation Administration. 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](https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Air_Quality_Handbook_Appendices.pdf).

*Leadership GHG Emission Factors Hub*. Additional detail regarding the methodology used to estimate emissions from stationary sources is provided in Appendix R-C-1, specifically Section 3.2.

#### **Motor Vehicles**

Emissions from motor vehicles were based on vehicle-miles travelled (VMT) data prepared in support of the EIR and emission factors from CARB's *EMFAC2017* model.<sup>12</sup> Additional detail regarding the methodology used to estimate emissions from motor vehicles is provided in Appendix R-C-1, specifically Section 3.3.

#### **Other Sources**

The operational inventory data presented in this section also estimates the project-related GHG emissions resulting from building energy consumption (i.e., electricity and natural gas), water usage (i.e., conveyance, consumption, and treatment), as well as solid waste disposal. Emissions from these activities were estimated using the CalEEMod, Version 2016.3.2.<sup>13</sup> Additional details regarding the assumptions used to estimate the GHG emissions associated with other sources are provided in Appendix R-C-1, specifically Section 3.4.

For ease in reviewing and interpreting the analysis results, GHGs are reported as CO<sub>2</sub>e expressed in metric tons (MT). In accordance with the IPCC, GHGs (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O) are converted to CO<sub>2</sub>e based on their GWP.<sup>14</sup>

The results of the analysis are presented on an annual basis, by analysis year. The technical components of the analysis are contained in Appendix R-C-1 (Air Quality and Greenhouse Gases).

### **3.3.4 Regulatory Framework**

This section describes the most relevant international, federal, state, and local agency policies, directives, and regulations pertaining to GHG emissions.

#### **3.3.4.1 International Plans and Policies**

##### **International Governmental Panel on Climate Change**

In 1988, the United Nations and the World Meteorological Organization established the IPCC to “provide policymakers with regular scientific assessments on the current state of knowledge about climate change” and “to provide governments at all levels with scientific information that they can use to develop climate policies.” The IPCC “provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.”<sup>15</sup> Since its inception, the IPCC has delivered five comprehensive scientific reports about climate change, with

<sup>12</sup> 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>.

<sup>13</sup> CalEEMod User's Guide, Version 2016.3.2. November 2017. Available: <http://caleemod.com/>.

<sup>14</sup> The GWPs are 1 for CO<sub>2</sub>, 28 for CH<sub>4</sub>, and 265 for N<sub>2</sub>O per the IPCC's Fifth Assessment Report.

<sup>15</sup> Intergovernmental Panel on Climate Change. Overview. Available: <https://www.ipcc.ch/about/>; Intergovernmental Panel on Climate Change. History. Available: <https://www.ipcc.ch/about/history/>.

the latest (the Fifth Assessment Report) released in four parts between September 2013 and November 2014.<sup>16</sup>

### **United Nations Framework Convention on Climate Change**

In March 1994, the United States joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.<sup>17</sup>

### **Kyoto Protocol**

The Kyoto Protocol is a treaty made under the UNFCCC. More than 160 countries, accounting for 55 percent of global emissions, have signed the protocol, under which they commit to reduce their GHG emissions or engage in emissions trading. The United States symbolically signed the Kyoto Protocol in 1998; however, the U.S. Senate has not ratified the protocol. The original GHG reduction commitments made under the Kyoto Protocol expired at the end of 2012. An extension of the commitment period to December 31, 2020 was agreed to at the Doha, Qatar meeting held in December 2012.<sup>18</sup>

### **Paris Agreement**

Negotiations held to discuss measures to take after the end of the Kyoto Protocol commitment period resulted in the 2015 adoption of the Paris Agreement.<sup>19</sup> The United States formally entered into the Paris Agreement in September 2016 via an executive order; however, the agreement was never submitted to Congress for approval. In June 2017, the United States announced its intent to withdraw from the agreement. The earliest effective date of withdrawal by the United States is November 2020.

### **Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**

The Carbon Offsetting and Reduction Scheme for International Aviation, or CORSIA, is a CO<sub>2</sub> emission mitigation approach for the global airline industry developed by the International Civil

<sup>16</sup> The IPCC is currently in its Sixth Assessment cycle. During this cycle, the Panel will produce three Special Reports, a Methodology Report on national greenhouse gas inventories and the Sixth Assessment Report (AR6). The AR6 will comprise three Working Group contributions and a Synthesis Report. The AR6 Synthesis Report will integrate and synthesize the contributions from the three Working Groups that will be rolled out in 2021 into a concise document suitable for policymakers and other stakeholders. It will be finalized in the first half of 2022. (Intergovernmental Panel on Climate Change. Reports webpage. Available: <https://www.ipcc.ch/report/sixth-assessment-report-cycle/>.)

<sup>17</sup> United Nations Framework Convention on Climate Change. What is the United Nations Framework Convention on Climate Change? Available: <https://unfccc.int/process/the-convention/what-is-the-united-nations-framework-convention-on-climate-change>.

<sup>18</sup> United Nations Framework Convention on Climate Change. KP Introduction. Available: <http://unfccc.int/process/the-kyoto-protocol>.

<sup>19</sup> United Nations Framework Convention on Climate Change. Paris Agreement. 2015. Available: [http://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf); United Nations Framework Convention on Climate Change. Adoption of the Paris Agreement. December 2015. Available: <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>.

Aviation Organization (ICAO) to address CO<sub>2</sub> emissions from international air travel. ICAO is a United Nations specialized agency, established in 1944, to manage the administration and governance of the Convention on International Civil Aviation. ICAO works with 193 member countries and states throughout the world, as well as industry groups, to reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies in support of a safe, efficient, secure, economically sustainable, and environmentally responsible civil aviation sector. These SARPs and policies are used by ICAO members to ensure that their local civil aviation operations and regulations conform to global norms which, in turn, permits more than 100,000 daily flights in aviation's global network to operate safely and reliably in every region of the world.<sup>20</sup>

In 2010, ICAO adopted several aspirational targets to minimize CO<sub>2</sub> emissions from aircraft operation: a global target of improving aviation fuel efficiency by two percent annually through 2050; carbon neutral growth from 2020; and reducing CO<sub>2</sub> emissions by 50 percent by 2050 compared to 2005 emission levels (Resolution A37-19). ICAO created a “basket of measures” to achieve these goals: 1) aircraft technology and standards; 2) operational improvements; 3) sustainable alternative fuels; and 4) global market-based mechanisms. ICAO recognized that aircraft technology and standards and operational improvements are not enough to achieve its carbon neutral goal and that alternative fuels require more development. ICAO subsequently adopted CORSIA in 2016 to provide a market-based mechanism to fill the emissions reduction gap that would occur between implementation of the other measures and 2020 baseline emission levels (Resolution A39-3).<sup>21</sup>

CORSIA is designed to implement emission reduction mechanisms with a voluntary pilot phase between 2021 and 2023, a voluntary first phase between 2024 and 2026, and a mandatory second phase between 2027 and 2035. The United States elected to voluntarily enter CORSIA during the pilot phase commencing in 2021.

CORSIA is a route-based approach, meaning that only emissions from international flights between two member states where both the origin and destination states are included in CORSIA are part of the scheme. Starting in 2019, all aircraft operators (namely airlines), regardless of the country in which they are based, are required to monitor their fuel consumption on routes covered by CORSIA and to estimate their annual CO<sub>2</sub> emissions. ICAO will calculate the average annual emissions between 2019 and 2020 to establish a baseline from which increased CO<sub>2</sub> emissions in subsequent years will be determined. ICAO will use the collected inventory data in future years to estimate a sectoral growth factor of emissions that will then be used by aircraft operators to calculate their CO<sub>2</sub> offsetting requirements. Each operator then purchases emission credits from the carbon market to offset its emissions.

<sup>20</sup> International Civil Aviation Organization webpage. About ICAO. Available: <https://www.icao.int/about-icao/Pages/default.aspx>.

<sup>21</sup> International Civil Aviation Organization. Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme. Available: <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx>.

In 2018, ICAO adopted SARPs to implement CORSIA in the form of Annex 16, Volume IV to the Convention on International Civil Aviation.<sup>22</sup> On March 6, 2019, the FAA published its CORSIA Monitoring, Reporting, and Verification (MRV) Program,<sup>23</sup> which provides information to U.S. airplane operators on how to fulfill their obligations under CORSIA and establishes uniformity with the SARPs adopted by ICAO. Only operators that emit more than 10,000 metric tons of CO<sub>2</sub> per year from international flights are subject to CORSIA with the following exemptions: (1) domestic flights; (2) humanitarian, medical, and firefighting operations; (3) operations using an airplane with a maximum certified takeoff mass equal to or less than 5,700 kilograms; and (4) operations on behalf of the U.S. military.

### 3.3.4.2 Federal Plans, Policies, and Regulations

#### USEPA Endangerment Findings

In 2010, the USEPA adopted an endangerment finding for GHGs under Clean Air Act (CAA) Section 202(a), in which the Administrator determined that: (1) six GHGs, taken in combination, endanger both the public health and welfare of current and future generations, and (2) the combined GHG emissions from new motor vehicles contribute to air pollution.<sup>24</sup> These findings themselves did not impose any requirements on industry or other entities. However, this action was a prerequisite for implementing GHG emissions standards for vehicles.

In 2016, the USEPA finalized the first steps toward addressing GHG emissions from aircraft engines by determining that GHGs emitted from certain classes of engines used in certain aircraft contribute to the air pollution that endangers public health and welfare.<sup>25</sup> The USEPA has not yet proposed rules for aircraft engine GHG emissions standards.

#### GHG and Fuel Efficiency Standards for Passenger Cars and Light-Duty Trucks

In April 2010, the USEPA and National Highway Traffic Safety Administration (NHTSA) finalized GHG standards for new (model year 2012 through 2016) passenger cars, light-duty trucks, and medium-duty passenger vehicles that would decrease CO<sub>2</sub> emission limits for a combined fleet of cars and light trucks. If fuel economy improvements caused all necessary emission reductions, the standards would correspond to a combined fuel economy of 30.1 miles per gallon (mpg) in 2012 and 35.5 mpg in 2016.<sup>26</sup> The agencies also issued a joint final rule for model years 2017 to 2025

<sup>22</sup> International Civil Aviation Organization. Annex 16 to the Convention on International Civil Aviation – Environmental Protection – Volume IV, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). First Edition, October 2018. Available: <https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx>.

<sup>23</sup> U.S. Department of Transportation, Federal Aviation Administration. Notice of CORSIA Monitoring, Reporting, and Verification Program. March 6, 2019. Available: [https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/research/environmental\\_policy/media/corsia\\_mrv\\_program\\_statement.pdf](https://www.faa.gov/about/office_org/headquarters_offices/apl/research/environmental_policy/media/corsia_mrv_program_statement.pdf).

<sup>24</sup> Federal Register, Vol. 74, No. 239. Part V Environmental Protection Agency, 40 CFR Chapter I, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, Final Rule. December 2009, pp. 66496 - 66546. Available: [https://www.epa.gov/sites/production/files/2016-08/documents/federal\\_register-epa-hq-oar-2009-0171-dec.15-09.pdf](https://www.epa.gov/sites/production/files/2016-08/documents/federal_register-epa-hq-oar-2009-0171-dec.15-09.pdf).

<sup>25</sup> U.S. Environmental Protection Agency. Regulatory Announcement: EPA Finalizes First Steps to Address Greenhouse Gas Emissions from Aircraft Engines. July 2016. Available: <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockkey=P100P1UN.TXT>.

<sup>26</sup> U.S. Environmental Protection Agency. Regulatory Announcement: EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks. April 2010. Available: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100AKHW.PDF?Dockkey=P100AKHW.PDF>.

light-duty vehicles in August 2012 that would correspond to a combined fuel economy of 36.6 mpg in 2017 and 54.5 mpg in 2025.

As part of the 2012 rulemaking establishing the model year 2017-2025 light-duty vehicle GHG standards, the USEPA made a regulatory commitment to conduct a Midterm Evaluation of the standards for model years 2022-2025. As part of this process, the USEPA was to examine a wide range of factors, such as developments in powertrain technology, vehicle electrification, light-weighting and vehicle safety impacts, the penetration of fuel efficient technologies in the marketplace, consumer acceptance of fuel efficient technologies, trends in fuel prices and the vehicle fleet, employment impacts, and many others. In April 2018, the USEPA Administrator signed the Mid-term Evaluation Final Determination, which found that the model year 2022-2025 GHG standards are not appropriate in light of the record before the USEPA and, therefore, should be revised. The USEPA, in partnership with NHTSA, has initiated a proposed rule to consider appropriate standards for model years 2021-2026 light-duty vehicles.<sup>27</sup>

### **GHG and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles**

In October 2010, the USEPA and NHTSA announced a program to reduce GHG emissions and to improve fuel efficiency for medium- and heavy-duty vehicles (model years 2014 through 2018). These standards were signed into law in August 2011.<sup>28</sup> In October 2016, the USEPA and NHTSA adopted Phase 2 GHG and fuel efficiency standards for medium- and heavy-duty engines and vehicles. The standards are expected to lower CO<sub>2</sub> emissions by approximately 1.1 billion MT and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.<sup>29</sup>

### **Fuel Efficiency Standards for Construction Equipment**

The federal government sets fuel efficiency standards for non-road diesel engines that are used in construction equipment. The regulations, contained in 40 CFR Parts 1039, 1065, and 1068, include multiple tiers of emission standards. Most recently, the USEPA adopted a comprehensive national program to reduce emissions from non-road diesel engines by integrating engine and fuel controls as a system to gain the greatest emission reduction. To meet Tier 4 emission standards, engine manufacturers will produce new engines with advanced emission control technologies.<sup>30</sup>

<sup>27</sup> U.S. Environmental Protection Agency. Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025 – Overview. Available: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#overview> and Federal Register, Vol. 83, No. 72. April 13, 2018; U.S. Environmental Protection Agency. 40 CFR Parts 85 and 86 and 49 CFR Parts 523, 531, 533, 536, and 537. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, August 24, 2018. Available: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-proposed#rule-summary>.

<sup>28</sup> U.S. Environmental Protection Agency. Regulatory Announcement: EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles. August 2011. Available: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100BOT1.PDF?Dockey=P100BOT1.PDF>.

<sup>29</sup> U.S. Environmental Protection Agency. Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2. Available: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency#rule-history>.

<sup>30</sup> U.S. Environmental Protection Agency. Regulations for Emissions from Vehicles and Engines Homepage. Regulations for Emissions from Heavy Equipment with Compression-Ignition (Diesel) Engines. Available: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-heavy-equipment-compression>.

## Aviation Greenhouse Emissions Reduction Plan

In 2012, the United States Government (USG) completed the U.S. Aviation Greenhouse Gas Emissions Reduction Plan, which was submitted to the ICAO in June 2012.<sup>31</sup> In conjunction with the plan, the USG set an overarching goal of achieving carbon-neutral growth for U.S. commercial aviation by 2020, using 2005 emissions as a baseline, which equates to about a 115 million MT reduction in CO<sub>2</sub> emissions from commercial aviation by 2020, and by extending those approaches further there could be an additional 60 million MT reduction by 2026. As part of the Next Generation Air Transportation System (NextGen) Plan, the USG has laid out plans and initiatives for improvements in technology and operations, advances in development and deployment of sustainable alternative fuels, and policies and selective measures to incentivize transition of the fleet and airspace system.

The Reduction Plan identifies actions and progress toward GHG emissions reduction in each of the following areas: Aircraft and Engine Technology Improvement; Operational Improvements; Alternative Fuels Development and Deployment; Policies, Standards, and Measures; and Scientific Understanding and Modeling/Analysis.

In 2015, the USG updated the Aviation Greenhouse Gas Emissions Reduction Plan with additional details on actions to be taken regarding each of the topics noted above, which would occur under the auspices of NextGen.<sup>32</sup>

## FAA Programs and Efforts to Reduce GHG Emissions

The FAA encourages and supports airports' efforts to reduce carbon emissions including, as a first step, that airports prepare a GHG inventory that categorizes emissions in terms of Scope 1, Scope 2, and Scope 3 emissions, and then follow up with implementing measures for reducing the GHG emissions that are within the airport's direct control and also establish measures that indirectly influence the reduction of GHG emissions not controlled by the airport.<sup>33</sup> 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.<sup>34</sup> The FAA also offers grant funding for GHG emission reductions through the Voluntary Airport Low Emissions (VALE) program<sup>35</sup> and the Airport Zero Emissions Vehicle and Infrastructure Pilot Program.<sup>36</sup>

<sup>31</sup> United States Government. United States Aviation Greenhouse Gas Emissions Reduction Plan, Submitted to the International Civil Aviation Organization in June 2012. Available: [https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/enviro\\_policy\\_guidance/policy/media/Aviation\\_Greenhouse\\_Gas\\_Emissions\\_Reduction\\_Plan.pdf](https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_policy_guidance/policy/media/Aviation_Greenhouse_Gas_Emissions_Reduction_Plan.pdf).

<sup>32</sup> United States Government. United States Aviation Greenhouse Gas Emissions Reduction Plan, Submitted to the International Civil Aviation Organization in June 2015. Available: [https://www.icao.int/environmental-protection/Lists/ActionPlan/Attachments/30/UnitedStates\\_Action\\_Plan-2015.pdf](https://www.icao.int/environmental-protection/Lists/ActionPlan/Attachments/30/UnitedStates_Action_Plan-2015.pdf).

<sup>33</sup> U.S. Department of Transportation, Federal Aviation Administration. Airport Carbon Emissions Reduction. Available: [https://www.faa.gov/airports/environmental/air\\_quality/carbon\\_emissions\\_reduction/](https://www.faa.gov/airports/environmental/air_quality/carbon_emissions_reduction/).

<sup>34</sup> U.S. Department of Transportation, Federal Aviation Administration. Airport Sustainability. Available: <https://www.faa.gov/airports/environmental/sustainability/>.

<sup>35</sup> U.S. Department of Transportation, Federal Aviation Administration. Voluntary Airport Low Emissions Program (VALE). Available: <https://www.faa.gov/airports/environmental/vale/>.

<sup>36</sup> 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/](https://www.faa.gov/airports/environmental/zero_emissions_vehicles/).

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](http://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.

### 3.3.4.3 State Plans, Policies, and Regulations

The legal framework for GHG emission reduction in California has come about through Executive Orders, legislation, and regulation. The major components of California's climate change initiatives are reviewed below.

#### California Environmental Quality Act

CEQA requires lead agencies to analyze the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to GCC. In turn, GCC has the potential to raise sea levels and affect rainfall, snowfall, and habitat.

Senate Bill (SB) 97, enacted in August 2007, required the California Governor's Office of Planning and Research to prepare guidelines to submit to the California Natural Resources Agency (CNRA) regarding feasible mitigation of GHG emissions or the effects of GHG emissions as mandated by CEQA.<sup>37</sup> The CNRA adopted amendments to the State CEQA Guidelines addressing GHG emissions in December 2009; and, certain provisions were updated via a rulemaking process that concluded in December 2018. The latest provisions of the State CEQA Guidelines are reflected in this EIR.

The significance of GHG emissions are specifically addressed in State CEQA Guidelines Section 15064.4. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate, or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of: (1) the extent to which the project may increase or reduce GHG emissions, as compared to the existing environmental setting; (2) whether the project emissions would exceed a locally applicable threshold of significance; and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of [GHG] emissions." The guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable, if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements to avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (State CEQA Guidelines Section 15064(h)(3)). The State CEQA Guidelines do not, however, set a numerical threshold of significance for GHG emissions.

<sup>37</sup> California Senate Bill 97, Chapter 185, Statutes of 2007.

## Title 24 Energy Standards

Although not originally intended to reduce GHG emissions, California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. The latest amendments to Title 24 went into effect on January 1, 2017. The premise for the standards is that energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (for example, for water heating or from the use of on-site generators) result in GHG emissions. Therefore, increased energy efficiency in buildings results in fewer GHG emissions on a building-by-building basis.

In May 2018, the California Energy Commission approved adoption of the 2019 Building Energy Efficiency Standards, which will take effect on January 1, 2020.<sup>38</sup> The new standards focus on four key areas: smart residential photovoltaic systems; updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); residential and nonresidential ventilation requirements; and nonresidential lighting requirements.

## Green Building Standards

The 2013 California Green Building Standards Code (24 CCR Part 11; also referred to as CALGreen) took effect January 1, 2014.<sup>39</sup> The Green Building Standards, as updated (2016), require that every new building constructed in California reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials. They also require separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects and mandatory inspections of energy systems (e.g., heat furnace, air conditioner, and mechanical equipment) for nonresidential buildings larger than 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies.

## Executive Order S-3-05

California Governor Arnold Schwarzenegger announced in June 2005, through Executive Order S-3-05, the following GHG emission reduction targets for all of California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.<sup>40</sup>

<sup>38</sup> California Energy Commission. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. May 9, 2018.

<sup>39</sup> 24 California Code of Regulations, Part 11, California Building Standards Commission. 2016 California Green Building Standards Code (CALGreen).

<sup>40</sup> California Executive Order S-3-05. June 2005.

### **Executive Order B-30-15**

In 2015, California Governor Edmund G. Brown issued Executive Order B-30-15 to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030.<sup>41</sup>

### **Executive Order B-55-18**

In 2018, California Governor Edmund G. Brown issued Executive Order B-55-18 to establish a California GHG emissions reduction target of carbon neutrality as soon as possible, and no later than 2045.<sup>42</sup> In accordance with this executive order, CARB is working with relevant state agencies to define California's carbon neutrality objective (both quantitatively and descriptively), researching emission reduction strategies that can be used to achieve carbon neutrality, and studying the economic, policy and other implications of potential strategies. To date, CARB has not adopted – via an amendment or update to the Scoping Plan – a strategy to achieve carbon neutrality.

### **Assembly Bill 32**

Assembly Bill 32 (AB 32), titled the California Global Warming Solutions Act of 2006 (Pavley) and signed by Governor Schwarzenegger in September 2006, required CARB to adopt regulations to require the reporting and verification of statewide GHG emissions and to monitor and enforce compliance with the program.<sup>43</sup> In general, the bill required CARB to cause reduction in statewide GHG emissions to the equivalent level of emissions estimated for 1990 by 2020.

CARB has taken numerous actions in response to the directives set forth in AB 32. For example, CARB adopted regulations in December 2007 for mandatory GHG emissions reporting. In December 2008, CARB approved the AB 32 Climate Change Scoping Plan (Scoping Plan) outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. In August 2011, the Scoping Plan was re-approved by CARB, including the final supplement to its functional equivalent document, as required by CEQA. The First Update to the Scoping Plan, which will guide the continued development and implementation of the state's efforts to fight climate change, was approved by CARB in May 2014.

Part of the Scoping Plan includes an economy-wide cap-and-trade program, which sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and established a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest-cost options to reduce emissions. The final cap-and-trade plan was approved in October 2011 and went into effect on January 1, 2013.

<sup>41</sup> California Executive Order B-30-15. April 2015.

<sup>42</sup> California Executive Order B-55-18. September 2018.

<sup>43</sup> California Assembly Bill 32, Chapter 488, Statutes of 2006.

In late 2017, CARB adopted an update to the Scoping Plan to reflect the Executive Order B-30-15 GHG reduction target of 40 percent below 1990 levels by 2030, a target also identified in SB 32, described below.<sup>44</sup>

### **Senate Bill 32**

Senate Bill 32 (SB 32), which extends the California Global Warming Solutions Act of 2006 (AB 32) beyond 2020, was enacted into law in September 2016.<sup>45</sup> SB 32 requires CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective methods to reduce GHG emissions to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 statewide GHG emissions limit by no later than December 31, 2030, the target established by Executive Order B-30-15. CARB has adopted a strategy for achieving this goal (see the 2017 Scoping Plan referenced above), which takes into account the key programs associated with implementation of the AB 32 Scoping Plan, such as GHG reduction programs for cars, trucks, fuels, industry, and electrical generation, and builds upon, in particular, existing programs related to the Cap-and-Trade Regulation; the Low Carbon Fuel Standard; much cleaner cars, trucks, and freight movement; power generation for the state using cleaner renewable energy; and strategies to reduce methane emissions from agricultural and other wastes by using it to meet the state's energy needs. The 2017 Scoping Plan also addresses, for the first time, GHG emissions from natural and working lands, including the agriculture and forestry sectors.<sup>46</sup>

### **Senate Bill 375**

Under Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act of 2008, each metropolitan planning organization (MPO) in the state is required to develop Sustainable Community Strategies through integrated land use and transportation planning that would attain, if implemented, per capita GHG reduction targets for passenger vehicles set by CARB by 2020 and 2035.<sup>47</sup> CARB initially issued a 7 percent per capita reduction target for the San Diego region for 2020 and a target of 13 percent per capita reduction by 2035. In March 2018, CARB updated the regional GHG emissions reduction targets. For the San Diego region, the new targets, beginning October 1, 2018, will be a 15 percent per capita reduction target for the San Diego region for 2020 and a target of 19 percent per capita reduction by 2035. The San Diego Association of Government's (SANDAG) latest Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the San Diego region is integrated into the San Diego Forward: The Regional Plan | 2015-2050 adopted by SANDAG in October 2015,<sup>48</sup> as described below.

<sup>44</sup> California Air Resources Board. California's 2017 Climate Change Scoping Plan. Available: [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf).

<sup>45</sup> California Senate Bill 32, Chapter 249, Statutes of 2016.

<sup>46</sup> California Air Resources Board. California's 2017 Climate Change Scoping Plan. Available: [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf).

<sup>47</sup> California Senate Bill 375, Chapter 728, Statutes of 2008.

<sup>48</sup> San Diego Association of Governments. San Diego Forward: The Regional Plan | 2015-2050, October 2015. Available: <http://www.sdforward.com/>.

## Assembly Bill 1493

Enacted in July 2002, Assembly Bill 1493 (AB 1493) required CARB to develop and adopt regulations that will lead to a reduction in GHGs emitted by passenger vehicles and light-duty trucks. Subsequent regulations adopted by CARB, often referred to as the Pavley regulations, apply to 2009 through 2016 vehicles. CARB estimated that the regulations would reduce GHG emissions from the light duty and passenger vehicle fleet by 18 percent in 2020 and by 27 percent in 2030, compared to recent years.<sup>49</sup> In 2011, the U.S. Department of Transportation, the USEPA, and California announced a single timeframe for proposing fuel and economy standards, thereby aligning the Pavley regulations with the federal standards for passenger cars and light-duty trucks.<sup>50</sup> Emission estimates included in this analysis account for the Pavley standards.

## Advanced Clean Cars Program

In January 2012, CARB approved a new emissions-control program for vehicles of model years 2017 through 2025. The program combines the control of smog, soot, and GHG into a single package of standards referred to as the Advanced Clean Cars program (13 CCR §1962.1 and 1962.2). The Advanced Clean Cars requirements include new GHG standards for model year 2017 to 2025 vehicles. The Advanced Clean Cars Program also includes amendments to the low emission vehicle (LEV) regulations (referred to as the LEV III regulations; 13 CCR §1900 et seq.), zero emission vehicle (ZEV) regulations, and the Clean Fuels Outlet Regulation. The LEV III regulations are aimed at reducing criteria pollutant and GHG emissions from light- and medium-duty vehicles. The ZEV regulation requires manufacturers to produce an increasing number of the very cleanest cars available, including battery electric, fuel cell, and plug-in hybrid electric vehicles. The Clean Fuels Outlet regulation is designed to ensure that fuels, such as electricity and hydrogen, are available to meet the fueling needs of the new advanced technology vehicles as they come to market.<sup>51,52</sup>

## Executive Order S-01-07 and the Low Carbon Fuel Standard

California Executive Order S-01-07 established a statewide goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 from 2005 levels. The Executive Order also mandated the creation of Low Carbon Fuel Standard (LCFS) for transportation fuels. The LCFS requires that the lifecycle GHG emissions for the mix of fuels sold in California decline on average. Each fuel provider may meet the standard by selling fuel with lower carbon content, using previously banked credits from selling fuel that exceeded the LCFS, or purchasing credit from other fuel providers who have earned credits.<sup>53</sup> In 2018, CARB amended the

<sup>49</sup> California Air Resources Board. Fact Sheet: Climate Change Emission Control Regulations. December 2004. Available: [https://www.arb.ca.gov/cc/ccms/factsheets/cc\\_newfs.pdf](https://www.arb.ca.gov/cc/ccms/factsheets/cc_newfs.pdf).

<sup>50</sup> California Air Resources Board. EPA, DOT and California Align Timeframe for Proposing Standards for Next Generation of Clean Cars. January 2011.

<sup>51</sup> California Air Resources Board. Advanced Clean Cars Program Homepage. Available: <https://www.arb.ca.gov/msprog/acc/acc.htm>.

<sup>52</sup> California Air Resources Board. News Release: California Air Resources Board Approves Advanced Clean Car Rules. January 2012.

<sup>53</sup> 17 California Code of Regulations, Section 95480 et seq., Low Carbon Fuel Standard.

implementing LCFS regulations to require a 20 percent reduction in the carbon intensity of transportation fuels by 2030.

### **Renewable Portfolio Standard**

Senate Bill 1078 (SB 1078; Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to obtain at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) accelerated the target date to 2010. In November 2008, the Governor signed Executive Order S-14-08, which expanded the state's Renewable (Energy) Portfolio Standard (RPS) to 33 percent renewable power by 2020. In September 2009, the Governor issued Executive Order S-21-0911 requiring CARB, under its AB 32 authority, to adopt regulations to meet a 33 percent RPS target by 2020. The CARB regulations use a phased-in or tiered requirement to increase the amount of electricity from eligible renewable sources over an eight-year period beginning in 2012. CARB adopted the regulations in September 2010.

In March 2011, the Legislature passed Senate Bill XI-2 (SB XI-2), which was signed into law by the Governor the following month. SB XI-2 requires utility entities to procure renewable energy products equal to 33 percent of retail sales by December 31, 2020, and also established interim targets: 20 percent by December 31, 2013, and 25 percent by December 31, 2016. Senate Bill SB 350 of 2015 (Chapter 547, Statutes of 2015) increased the renewable portfolio standard to 50 percent by the year 2030, and also established interim targets of 40 percent by December 31, 2024 and 45 percent by December 31, 2027. And, Senate Bill 100 (Chapter 312, Statutes of 2018) further increased and accelerated the renewable portfolio standard as follows: 50 percent by December 31, 2026, and 60 percent by December 31, 2030. Senate Bill 100 also established the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

### **Zero-Emission Airport Shuttle Bus Regulation**

In June 2019, CARB approved a rule that will require fixed route airport shuttles serving the state's 13 largest airports to transition to 100 percent zero-emission vehicles (ZEVs) by 2035. The regulation applies to public and private fleets, including parking facilities, rental car agencies, and hotels. With almost 1,000 airport shuttles in operation, the regulation is expected to reduce GHG emissions by at least 500,000 metric tons, with a beneficial economic impact for shuttle fleet owners of an estimated \$30 million in reduced fuel and maintenance costs. Additional milestones under the new regulation include at least 33 percent of airport shuttle fleets being zero emission by 2027, and 66 percent by 2031.<sup>54</sup> The GHG emission reduction benefit of this regulation was considered in the analysis.

<sup>54</sup> California Air Resources Board. Bulletin - California Air Resources Board approves comprehensive effort to clean up airport shuttles. June 26, 2019. Available: <https://content.govdelivery.com/accounts/CARB/bulletins/24e019a>.

### **Innovative Clean Transit (ICT) Regulation**

The ICT regulation was adopted by CARB in December 2018 and requires all public transit agencies to gradually transition to a 100 percent zero-emission bus (ZEB) fleet. Beginning in 2029, 100 percent of new purchases by transit agencies must be ZEBs, with a goal for full transition by 2040. It applies to all transit agencies that own, operate, or lease buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. It includes standard, articulated, over-the-road, double-decker, and cutaway buses.<sup>55</sup>

The ICT regulation is part of a statewide effort to reduce emissions from the transportation sector, which accounts for 40 percent of climate-changing gas emissions and 80-90 percent of smog-forming pollutants. The transition to zero-emission technologies, where feasible, is essential to meeting California's air quality and climate goals.

Full implementation of the regulation is expected to reduce GHG emissions by 19 million metric tons from 2020 to 2050 – the equivalent of taking 4 million cars off the road. And it will reduce harmful tailpipe emissions (nitrogen oxides and particulate matter) by about 7,000 tons and 40 tons respectively during that same 30-year period.<sup>56</sup> The GHG emissions reduction benefit of this regulation was considered in the analysis.

### **Zero-Emission Airport Ground Support Equipment Regulation**

In order to promote the development and use of zero-emission airport GSE, CARB is in the process of developing a measure to increase the penetration of zero-emission GSE at California airports. The measure is currently scheduled for Board consideration in late 2020. Because this measure is not adopted, discussion of this measure is provided for information purposes only; no emissions reduction has been assumed in the project's emissions inventories relative to this pending regulatory effort.

#### **3.3.4.4 Regional**

##### **San Diego Association of Governments (SANDAG) Regional Plan**

The SANDAG Regional Plan, referred to as San Diego Forward: The Regional Plan | 2015-2050, 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/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. Relative to GHG reduction, the SCS component of the Regional Plan provides a strategy for GHG reductions that exceed the targets for the San Diego region set by CARB in September 2010, which were applicable at the time the Regional Plan was adopted. Specifically, the CARB GHG reduction targets

<sup>55</sup> California Air Resources Board. Innovative Clean Transit (ICT) Regulation Fact Sheet. May 16, 2019. Available: <https://ww2.arb.ca.gov/resources/fact-sheets/innovative-clean-transit-ict-regulation-fact-sheet>.

<sup>56</sup> California Air Resources Board. Bulletin - California transitioning to all-electric public bus fleet by 2040. December 14, 2018. Available: <https://ww2.arb.ca.gov/news/california-transitioning-all-electric-public-bus-fleet-2040>.

for the San Diego region were 7 percent by 2020 and 13 percent by 2035,<sup>57</sup> whereas the SCS strategy provides for GHG reductions of 15 percent by 2020 and 21 percent by 2035.<sup>58</sup> As discussed above, subsequent to adoption of the Regional Plan, CARB revised the GHG reduction targets for each region of the state, applicable beginning October 1, 2018, with the new targets for the San Diego region being 15 percent by 2020 and 19 percent by 2035. The GHG reduction targets set forth in the current Regional Plan meet or are more stringent than CARB's revised targets.

The proposed project is specifically recognized in Chapter 2 of the Regional Plan, relative to redevelopment of Terminal 1 and coordination with SANDAG on the ITC and ground access plans. As such, the proposed project includes transportation improvements that are accounted for in the regional plans.

Also 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).<sup>59,60</sup> SDCRAA prepared the RASP for San Diego County 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 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 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 updated aviation forecast projects approximately 269,100 annual aircraft operations in 2030 and approximately 290,100 annual aircraft operations in 2050. The AMAP anticipates future development of an 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.).

<sup>57</sup> California Air Resources Board. SB 375 Regional Plan Climate Targets. Available: <https://ww2.arb.ca.gov/index.php/our-work/programs/sustainable-communities-program/regional-plan-targets>.

<sup>58</sup> San Diego Association of Governments. San Diego Forward: The Regional Plan | 2015-2050. October 2015. Table 2.1. Available: [http://www.sdfoward.com/pdfs/Final\\_PDFs/Chapter2\\_A\\_Strategy\\_for\\_Sustainability.pdf](http://www.sdfoward.com/pdfs/Final_PDFs/Chapter2_A_Strategy_for_Sustainability.pdf).

<sup>59</sup> 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.sdfoward.com/pdfs/Final\\_PDFs/AppendixU6.pdf](http://www.sdfoward.com/pdfs/Final_PDFs/AppendixU6.pdf).

<sup>60</sup> 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/F2050RTPA12.pdf>.

### 3.3.4.5 Local

#### San Diego County Climate Action Plan (CAP)

The County's CAP, adopted in February 2018, is a long-term programmatic plan that identifies strategies and measures to meet the County's targets to reduce GHG emissions by 2020 and 2030, consistent with the state's legislative GHG reduction targets, and demonstrates progress towards the state's 2050 GHG reduction goal. The County's CAP presently is the subject of pending litigation before California's Fourth District Court of Appeal, Division One (see *Sierra Club v. County of San Diego*, Case No. D075478), following invalidation of the CAP and its supporting CEQA documentation by the San Diego County Superior Court. The County's CAP is discussed here for information purposes; however, as the proposed project is not seeking approvals from the County of San Diego and as the CAP is the subject of ongoing litigation, no further discussion of the CAP is provided below.

#### City of San Diego General Plan

The City of San Diego General Plan is a comprehensive, long-term planning document that prescribes overall goals and policies for development within the City. The General Plan presents ten elements that together provide a comprehensive "blueprint" for the City of San Diego's growth beyond the year 2020, including several climate change-related policies aimed at reducing GHG emissions from future development and City operations. Planned growth is based on a strategy called the City of Villages, which focuses on pedestrian-friendly, mixed-use village centers that are linked by a high-quality transit network and served by public facilities and supporting infrastructure and amenities.

The General Plan is composed of ten interlinked elements. Those that are relevant to aviation, air quality and/or climate change are described below:

- Strategic Framework Element. The Strategic Framework contains citywide goals, the comprehensive City of Villages strategy, overall policy direction for future community plan updates and amendments and the implementation program. The following summaries of the other plan elements are excerpted from the Strategic Framework Element.
- Mobility Element. The Mobility Element contains policies to promote a balanced, multi-modal transportation network intended to get people where they want to go and to minimize environmental and neighborhood impacts.
- Public Facilities, Services and Safety Element. The Public Facilities, Services and Safety Element is intended to respond to the challenge of providing adequate public facilities to serve the City's current and future population through policies that address public financing strategies, public and developer financing responsibilities, prioritization, and the provision of specific facilities and services that must accompany growth. The policies within the Public Facilities, Services and Safety Element also apply to transportation, and park and recreation facilities and services.

- Recreation Element. The goals and policies of the Recreation Element were developed to take advantage of the City's natural environment and resources, to build upon existing recreation facilities and services, to help achieve an equitable balance of recreational resources, and to adapt to future recreation needs.
- Conservation Element. The Conservation Element contains policies intended to guide the conservation of resources that are fundamental components of San Diego's environment, help define the City's identity, and are relied upon for continued economic prosperity.

### City of San Diego Climate Action Plan (City CAP)

The City of San Diego CAP outlines strategies and measures that the City will undertake to reduce GHG emissions in furtherance of statewide emission reduction targets (see Section 3.3.4.3). The City CAP was developed following the State CEQA Guidelines and is used to determine the GHG significance of projects. This process is aided and streamlined by the *CAP Consistency Checklist*.<sup>61</sup> Using the *Checklist*, a project's consistency with the City's growth projections and land use plans are determined based on the following:

- Whether the project is consistent with the GHG projections in the City CAP;
- Whether the associated growth in GHG emissions are accounted for and within the scope of the CAP's analysis; and
- Whether a program of measures that contribute towards the City's overall reduction in GHG emissions is included.

As stated in the introduction to the City's *CAP Consistency Checklist*, "Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP."<sup>62</sup>

### Port of San Diego Climate Action Plan

The Port of San Diego Climate Action Plan (Port CAP)<sup>63</sup> identifies a variety of potential GHG reduction policies and measures selected to help the Port meet the GHG reduction goals of: 10 percent less GHG emissions than 2006 levels by 2020; and 25 percent less GHG emissions than 2006 levels by 2035. The policies and measures are organized in terms of: transportation and land use planning; energy conservation and efficiency; water conservation and recycling; alternative energy generation; waste reduction and recycling; and miscellaneous.

<sup>61</sup> City of San Diego. Climate Action Plan Consistency Checklist. June 2017. Available: [https://www.sandiego.gov/sites/default/files/city\\_of\\_san\\_diego\\_cap\\_checklist.pdf](https://www.sandiego.gov/sites/default/files/city_of_san_diego_cap_checklist.pdf).

<sup>62</sup> City of San Diego. Climate Action Plan Consistency Checklist - Introduction. June 2017. Available: [https://www.sandiego.gov/sites/default/files/city\\_of\\_san\\_diego\\_cap\\_checklist.pdf](https://www.sandiego.gov/sites/default/files/city_of_san_diego_cap_checklist.pdf).

<sup>63</sup> Unified Port of San Diego. Port of San Diego Climate Action Plan 2013. Available: <https://www.portofsandiego.org/environment/energy-sustainability/climate-action-plan>.

## San Diego County Regional Airport Authority Plans and Programs

SDCRAA has several existing plans and programs in-place that serve to address climate change and reduce SDIA's air pollutant emissions, including criteria pollutants that are addressed in Section 3.2, Air Quality, and GHG emissions that are addressed in this section. 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; (5) SDIA Transportation Infrastructure Investment Agreement; and (6) Climate Resilience Plan.

### *Memorandum of Understanding (MOU) for Reduction of GHG<sup>64</sup>*

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

<sup>64</sup> 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](http://www.san.org/Portals/0/Documents/Environmental/SDCRAA%20Attorney%20General%20MOU_2008.pdf).

- 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)*

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.

Section 5 of the SDCRAA AQMP delineates numerous tasks that specifically address the GHG control measures described in the MOU, outlining the recommended means and timeframes for implementing such measures. The following summarizes the recommended tasks related to implementation of the MOU measures, many of which have been completed or are currently ongoing.

- MOU Measures 1a-e—Reduction in Aircraft On-the-Ground Energy Usage
  - Meet with airlines and cargo operators regarding plans to implement landside power and PCA.
  - Design landside power and PCA, if applicable, into all improvements at terminals, cargo facilities, and general aviation facilities.
  - Incorporate landside power and PCA into the design of the Terminal 2 West expansion.
  - Lease agreements, other enforceable agreements, and the Airport's operations manual should include statements that the landside power and PCA shall be utilized as soon as possible upon arrival at the gate, unless there are safety considerations.
  - Engineering staff will be updated on any recondition or refurbishing project that would require the incorporation of landside power and PCA.
  - Track and quantify GHG emission reductions associated with landside power and PCA.
- MOU Measure 1f—Aircraft Movements
  - Coordinate with Air Transport Associations (ATA), airlines, and FAA regarding practical measures that can be implemented to reduce GHG emissions associated with aircraft movement.
  - Select alternatives to reduce aircraft movement emissions by 20 percent by 2015.
  - Prepare a report for the public identifying and evaluating GHG emissions associated with aircraft movement at SDIA by January 1, 2010. Implement recommended actions addressed in the report. Continue to track and quantify GHG emission reductions associated with aircraft movement and submit in annual report.

- MOU Measure 2a—Replacement of Existing Tow Vehicles with Electric or Alternative Fuel Aircraft Pushback Tractors
  - Meet with ATA, airlines, and FAA regarding aircraft pushback tractors and conversion to electric or alternative fuels.
  - Conduct annual GSE surveys to determine the number of vehicles that are reaching the end of their useful lives and to ensure that each vehicle is properly permitted.
  - Work with airlines and ATA to research the commercial availability and safety of electric and alternative fuel pushback tractors, as well as the necessary operations associated with such procedures.
  - Determine viability of electric or alternative fuel pushback tractors for use at SDIA.
  - Work with federal, state, and local agencies to take advantage of funding programs that can be used to offset the cost to install electric recharging and alternative fuel fueling stations.
  - If electric or alternative fuel pushback tractors are not viable or a reasonable alternative is not available, the SDCRAA shall confer with the Attorney General’s office for a deferral of this MOU specific measure.

As indicated in the above status summary of compliance with the measures in the MOU, many of the measures identified in the SDCRAA AQMP related to the MOU 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 implement the Authority’s practices. Further, SDCRAA commits to the following sustainable practices:<sup>65</sup>

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;

<sup>65</sup> 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=499](https://www.san.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=12228&Command=Core_Download&language=en-US&PortalId=0&TabId=499).

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.

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

Additionally, SDCRAA signed the "Airports Sustainability Declaration" in 2017, which is voluntary and non-binding, and calls for airports to develop, implement, and expand initiatives that improve the sustainability and resilience of airports and their surrounding communities.<sup>66</sup>

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>.

---

<sup>66</sup> San Diego County Regional Airport Authority. "SAN Signs Sustainability Declaration". Available: <http://sustain.san.org/operational/>.

Further, SDCRAA identifies the following organization-wide environmental sustainability policies and goals:

- Sustainability Policy/Reporting, Waste Management, and Biodiversity
  - Conduct annual sustainability reporting
  - Achieve third-party certification (LEED and Envision) for all major new/remodeled facilities
  - Preserve California least tern habitat
- Sustainable Energy
  - Achieve 100 percent renewable energy by 2035
  - Achieve 30 percent reduction in energy use intensity (per square foot) and energy cost per passenger by 2035
  - Make energy systems resilient to 24-hour outage
- Water Stewardship and Stormwater Management
  - Eliminate potable water use for non-potable processes by 2035
  - Achieve zero stormwater discharge by 2035
  - Make all critical facilities resilient in a 100-year storm event by 2035
- Transit and Transportation
  - Maximize marketing and passenger information using airport and non-airport signage and branding
  - Leverage vehicle electrification and alternative fuel vehicles to meet the transportation sector’s contribution to air quality and GHG reduction goals

#### *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.

#### *Climate Resilience Plan*

The Climate Resilience Plan (CRP),<sup>67</sup> accepted in June 2019 by SDCRAA Board of Directors, provides a strategy for achieving business continuity in future climate conditions, by adapting existing and future assets and operations to projected climate conditions.

The CRP builds off existing initiatives, such as improving storm drainage capacity in low-lying areas to collaborating with regional stakeholders to explore large-scale coastal flood protection strategies.

<sup>67</sup> San Diego County Regional Airport Authority. Climate Resilience Plan – A Roadmap to Maintain Business Continuity and Climate Change. Final Version. June 2019. Available: [https://www.san.org/Portals/0/Documents/Environmental/2019-Draft/082919\\_DRAFT\\_SD\\_Intl\\_Airport\\_Climate\\_Resilience\\_Plan\\_lowres.pdf](https://www.san.org/Portals/0/Documents/Environmental/2019-Draft/082919_DRAFT_SD_Intl_Airport_Climate_Resilience_Plan_lowres.pdf).

The overarching goals of the CRP are to: (1) reduce risks associated with climate change to ensure business continuity, and to maintain a quality passenger experience; (2) integrate climate resilience into Airport operations and development decisions; and (3) provide regional and industry leadership in climate resilience. The CRP evaluates various climate stressors (sea level rise and storm surge; precipitation; and extreme heat) and identifies initiatives and tactics to advance the progress of the CRP that include a focus on governance (e.g., policy, planning, design guidelines, and regional collaboration); awareness (e.g., education, outreach, study, and on-going monitoring), and infrastructure (physical strategies to protect and accommodate.)

The CRP specifically identifies that it would help inform the further design and implementation of the proposed project, and that the future development of the proposed project, specifically the new Terminal 1, presents opportunities to ensure that the design of parking lots and the dedicated on-Airport Access Roadway prevents these assets from being exposed to future sea level rise and/or heavy rain events. The CRP, including SDIA's strategy to address future sea level rise scenarios, is addressed further in Section 3.11, Land Use and Planning.

### 3.3.5 Environmental Setting

This section provides information on the environmental setting as it pertains to GHGs. Information also is provided in the form of a GHG emissions inventory for SDIA under existing conditions.

#### 3.3.5.1 Existing Greenhouse Gas Setting

According to the IPCC, worldwide man-made emissions of GHGs in 2010 were approximately 49,000 million metric tons of CO<sub>2</sub>e (MMTCO<sub>2</sub>e).<sup>68</sup> Total GHG emissions in the United States in 2017 were 6,457 MMTCO<sub>2</sub>e.<sup>69</sup>

California, due in part to its large size and large population, is a substantial contributor of global GHGs, and is the second largest contributor to GHG emissions in the United States (Texas is first). As mandated by the Global Warming Solutions Act of 2006 (AB 32), CARB is required to compile GHG inventories for the State of California, including establishment of the 1990 Greenhouse Gas Emissions Level. Inventories have been prepared for 2000 through 2016. Based on the 2016 GHG inventory data (i.e., the latest year for which data are available), California emitted 429 MMTCO<sub>2</sub>e, 12 MMTCO<sub>2</sub>e lower than 2015 levels.<sup>70</sup>

Table 3.3-2 identifies and quantifies statewide anthropogenic GHG emissions and sinks in 1990 and 2016.<sup>71,72</sup> Although a large overall contributor to GHG emissions, California had the fourth

<sup>68</sup> Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)], *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change – Summary for Policymakers*, 2015, p. 5.

<sup>69</sup> U.S. Environmental Protection Agency. *Fast Facts 1990-2017 National-Level Greenhouse Gas Inventory*. Available: [https://www.epa.gov/sites/production/files/2019-04/documents/2019\\_fast\\_facts\\_508\\_0.pdf](https://www.epa.gov/sites/production/files/2019-04/documents/2019_fast_facts_508_0.pdf).

<sup>70</sup> California Air Resources Board. *California Greenhouse Gas Emissions for 2000-2016*. 2018 Edition. Available: [https://www.arb.ca.gov/cc/inventory/pubs/reports/2000\\_2016/ghg\\_inventory\\_trends\\_00-16.pdf](https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf).

<sup>71</sup> Per the USEPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016* (p. ES-1), "The term 'anthropogenic,' in this context, refers to greenhouse gas emissions and removals that are a direct result of human activities or are the result of natural processes that have been affected by human activities (IPCC 2006)." Available: [https://www.epa.gov/sites/production/files/2018-01/documents/2018\\_complete\\_report.pdf](https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf).

<sup>72</sup> The term "sink," in this context, refers to a natural or artificial reservoir that accumulates and stores GHGs for an indefinite period.

lowest CO<sub>2</sub> emissions per capita from fossil fuel combustion in the United States, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been otherwise.<sup>73</sup> It should be noted that of the 169.4 MMTCO<sub>2</sub>e of transportation-related GHG emissions in 2016, GHG emissions associated with aviation (intrastate) totaled 4.44 MMTCO<sub>2</sub>e, which is less than 1 percent of the total emissions.

**Table 3.3-2: State of California GHG Emissions<sup>1</sup>**

| Category                            | Total 1990 Emissions (MMTCO <sub>2</sub> e) | Percent of Total 1990 Emissions | Total 2017 Emissions (MMTCO <sub>2</sub> e) | Percent of Total 2017 Emissions |
|-------------------------------------|---------------------------------------------|---------------------------------|---------------------------------------------|---------------------------------|
| Transportation                      | 150.7                                       | 35%                             | 169.9 <sup>2</sup>                          | 39%                             |
| Electric Power                      | 110.6                                       | 26%                             | 62.4                                        | 16%                             |
| Commercial & Residential            | 44.1                                        | 10%                             | 41.1                                        | 10%                             |
| Industrial                          | 103.0                                       | 24%                             | 89.4                                        | 21%                             |
| Recycling and Waste                 | -- <sup>3</sup>                             | -- <sup>3</sup>                 | 8.9                                         | 2%                              |
| High GWP/Non-Specified <sup>4</sup> | 1.3                                         | <1%                             | 20.2                                        | 5%                              |
| Agriculture                         | 23.4                                        | 5%                              | 32.4                                        | 8%                              |
| Forestry                            | 0.2                                         | <1%                             | -- <sup>5</sup>                             | -- <sup>5</sup>                 |
| Forestry Sinks                      | -6.7                                        | --                              | -- <sup>5</sup>                             | -- <sup>5</sup>                 |
| <b>Net Total</b>                    | <b>426.6</b>                                | <b>100%</b>                     | <b>424.10</b>                               | <b>100%</b>                     |

Sources: California Air Resources Board. Staff Report: California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit. November 2007. Available: [http://www.arb.ca.gov/cc/inventory/pubs/reports/staff\\_report\\_1990\\_level.pdf](http://www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf); California Air Resources Board. California Greenhouse Gas Emission Inventory - 2019 Edition – by Category as Defined in the 2008 Scoping Plan. August 2019. Available: <https://ww3.arb.ca.gov/cc/inventory/data/data.htm>.

Notes:

1. Numbers may not add due to rounding.
2. GHG emissions associated with Aviation (Intrastate) in 2017 were 4.68 MMTCO<sub>2</sub>e, which is approximately 2.7 percent of the total Transportation-related GHG emissions in 2017.
3. Included in other categories for the 1990 emissions inventory.
4. High GWP gases are not specifically called out in the 1990 emissions inventory.
5. Revised methodology under development (not reported for 2017).

Between 1990 and 2017, the population of California grew by approximately 9.7 million (29.8 to 39.5 million).<sup>74</sup> This represents an increase of approximately 32 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from \$773 billion in 1990 to 2.81 trillion in 2017, representing an increase of approximately 263 percent (over

<sup>73</sup> U.S. Energy Information Administration. Energy-Related Carbon Dioxide Emissions at the State Level, 2000-2013. October 2015.

<sup>74</sup> California Department of Finance, Demographic Research Unit. Report E-5 Population and Housing Estimates for Cities, Counties, and the State. January 1, 2011–2019 with 2010 Benchmark, May 2019. Available: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>.

twice the 1990 gross state product).<sup>75</sup> Despite the population and economic growth, California's GHG emissions during that period decreased by approximately 0.6 percent.

### 3.3.5.2 SDIA GHG Emissions Inventory

GHG emissions for existing (2018 baseline) conditions at SDIA are presented in Table 3.3-3 (expressed in units of MT of CO<sub>2</sub>e per year).<sup>76</sup> As shown, aircraft comprise the vast majority (74 percent) of the total CO<sub>2</sub>e emissions, followed by motor vehicles (16 percent), GSE and stationary sources (4 percent each), other sources (2 percent), and APUs (1 percent). The emissions from other sources results from the generation of electricity, water usage, and solid waste disposal.

**Table 3.3-3: SDIA Existing (2018 Baseline) Conditions - GHG Emissions Inventory (in metric tons of CO<sub>2</sub>e)**

| Source             | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Total CO <sub>2</sub> e | Percent of Total |
|--------------------|-----------------|-----------------|------------------|-------------------------|------------------|
| Aircraft           | 247,486         | <1              | 2,018            | 249,504                 | 74               |
| APUs               | 2,205           | <1              | 18               | 2,223                   | 1                |
| GSE                | 12,060          | 6               | 26               | 12,091                  | 4                |
| Stationary Sources | 12,927          | 7               | 7                | 12,940                  | 4                |
| Motor Vehicles     | 54,347          | 267             | 820              | 55,434                  | 16               |
| Other <sup>1</sup> | 5,266           | 12              | <1               | 5,597                   | 2                |
| <b>Total</b>       | <b>334,290</b>  | <b>292</b>      | <b>2,888</b>     | <b>337,789</b>          | <b>100</b>       |

Source: KB Environmental Sciences, Inc., 2019.

Note: Totals reflect rounding.

1. Emissions from the generation of electricity, water usage, and solid waste disposal.

### 3.3.5.3 Future Climate Change Conditions Vulnerability and Risk Assessment

As discussed above, SDCRAA's Climate Resilience Plan includes an assessment of climate science data for the San Diego region to establish the foundation for evaluating SDIA's vulnerability to climate change impacts. The Climate Resilience Plan identifies that flooding from extreme precipitation events will be the biggest climate challenge for SDIA; however, additional climate stressors will also be experienced. Local air temperatures will continue to increase, with an anticipated longer duration of heat waves and an elevated number of extreme heat days each year. Less frequent, but more intense rainfall may cause higher-magnitude flood events and may increase the frequency of droughts. Coastal flooding due to sea level rise and storm surge is not a serious concern for SDIA until a 4.5-foot increase, which is defined by California State guidance as a medium- to high-risk aversion projection that would potentially take place by the end of the century.

As described in Section 3.11 Land Use and Planning, SDCRAA carried out a comprehensive vulnerability assessment to evaluate the risks posed by assets to future climate conditions,

<sup>75</sup> California Department of Finance. Gross Domestic Product, California. Available: [http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross\\_State\\_Product/](http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/). Estimated gross state product for 1990 and 2017 are based on current dollars as of 2018.

<sup>76</sup> Greenhouse gases comprise carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and other compounds. For uniformity, the GHGs are converted to carbon dioxide equivalents (CO<sub>2</sub>e).

including risks associated with electrical or mechanical system damage, life safety of staff and passengers, loss of California least tern habitat, and reduction in water quality.

### 3.3.6 Thresholds of Significance

In accordance with the State CEQA Guidelines (see Section 3.3.4.3), and for the purposes of this analysis, GHG emissions are considered significant if the proposed project would result in the following:

- Impact 3.3-1** Generate GHGs, either directly or indirectly, that may have a significant impact on the environment; or
- Impact 3.3-2** Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

### 3.3.7 Project Impacts

#### 3.3.7.1 GHG Emissions

Provided below are estimates of GHG emissions associated with construction and operation of the proposed project, including a delineation of the GHG emissions associated with the proposed project compared to the GHG emissions for existing (2018 baseline) conditions and, for informational purposes, as also compared to the GHG emissions under “Without Project” conditions, as further discussed in Chapter 5, Alternatives Analysis.

Consistent with the phasing plan for the proposed project, future-year GHG emissions estimates are based on construction activities and operational levels for SDIA in the years 2024 (Phase 1a), 2026 (Phase 1b), 2030 (Phase 2a), and 2035 (Phase 2b). For long-range planning purposes, the year 2050 was also analyzed. Technical components of the analysis (including detailed explanations of the methods, models, data, and assumptions) are contained in Appendix R-C.

##### 3.3.7.1.1 Construction Emissions

GHG emissions associated with the construction of the proposed project were estimated for on-road and off/non-road vehicles and equipment (e.g., excavators, graders, worker vehicles, etc.) for the anticipated construction activities. The ACEIT was used to derive equipment types and utilization needs, and the emission factors were obtained from *EMFAC2017* and *OFFROAD2017*.

Table 3.3-4 presents the GHG emissions inventory results for the construction activities from approximately late 2020/early 2021 through 2035.

As shown, the estimated emissions of GHGs associated with the construction of the proposed project range from 830 to 6,627 MT of CO<sub>2</sub>e annually. This year-to-year variation is largely attributable to the differences in project development timeframes and construction needs (see Appendix R-C-1). When summed, the proposed project’s total construction-related GHG emissions for the 15-year construction period would be 38,222 MT of CO<sub>2</sub>e.

**Table 3.3-4: Proposed Project Construction-Related GHG Emissions (in metric tons of CO<sub>2</sub>e)**

| Year | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | Total CO <sub>2</sub> e |
|------|-----------------|-----------------|------------------|-------------------------|
| 2021 | 3,974           | 5               | 55               | 4,033                   |
| 2022 | 3,912           | 4               | 53               | 3,970                   |
| 2023 | 3,859           | 4               | 51               | 3,915                   |
| 2024 | 6,522           | 7               | 98               | 6,627                   |
| 2025 | 2,664           | 3               | 47               | 2,714                   |
| 2026 | 2,649           | 3               | 47               | 2,698                   |
| 2027 | 2,604           | 4               | 25               | 2,633                   |
| 2028 | 2,597           | 4               | 25               | 2,625                   |
| 2029 | 2,574           | 3               | 25               | 2,603                   |
| 2030 | 2,569           | 3               | 25               | 2,598                   |
| 2031 | 830             | 1               | 15               | 846                     |
| 2032 | 826             | 1               | 15               | 842                     |
| 2033 | 822             | 1               | 15               | 838                     |
| 2034 | 819             | 1               | 15               | 834                     |
| 2035 | 815             | 1               | 15               | 830                     |

Source: KB Environmental Sciences, Inc., 2019.

Notes: Totals reflect rounding

See Appendix R-C for a detailed discussion of the methodology used to prepare the construction-related GHG emission estimates, including lists of equipment types and hours of operation by construction phase.

**3.3.7.1.2 Operational Emissions**

Operational emissions of GHGs associated with the proposed project were estimated for completion of each major subphase (i.e., 1a in 2024, 1b in 2026, 2a in 2030, and 2b in 2035) and are presented in Table 3.3-5. Results for the year 2050 are included for long-range planning purposes. Construction-related emissions that would result from the proposed project in the years 2024, 2026, 2030, and 2035 are also provided in Table 3.3-5. In this way, the full effects of the proposed project on CO<sub>2</sub>e emissions are disclosed.

**Table 3.3-5: Existing and Proposed Project Annual GHG Emissions (in metric tons of CO<sub>2</sub>e)**

| Year | Source   | Existing (2018 Baseline) Conditions |                  | Proposed Project                 |                  | Increase/ Decrease from Existing Conditions |
|------|----------|-------------------------------------|------------------|----------------------------------|------------------|---------------------------------------------|
|      |          | Metric Tons of CO <sub>2</sub> e    | Percent of Total | Metric Tons of CO <sub>2</sub> e | Percent of Total |                                             |
| 2024 | Aircraft | 249,504                             | 74%              | 285,313                          | 74%              | 35,810                                      |
|      | APUs     | 2,223                               | 1%               | 2,505                            | 1%               | 282                                         |
|      | GSE      | 12,091                              | 4%               | 12,471                           | 3%               | 380                                         |

**Table 3.3-5: Existing and Proposed Project Annual GHG Emissions (in metric tons of CO<sub>2</sub>e)**

| Year        | Source             | Existing (2018 Baseline) Conditions |                  | Proposed Project                 |                  | Increase/ Decrease from Existing Conditions |
|-------------|--------------------|-------------------------------------|------------------|----------------------------------|------------------|---------------------------------------------|
|             |                    | Metric Tons of CO <sub>2</sub> e    | Percent of Total | Metric Tons of CO <sub>2</sub> e | Percent of Total |                                             |
|             | Stationary Sources | 12,940                              | 4%               | 13,399                           | 3%               | 459                                         |
|             | Motor Vehicles     | 55,434                              | 16%              | 55,991                           | 15%              | 557                                         |
|             | Other <sup>1</sup> | 5,597                               | 2%               | 8,149                            | 2%               | 2,552                                       |
|             | Construction       | --                                  | 0%               | 6,627                            | 2%               | 6,627                                       |
|             | <b>Total</b>       | <b>337,789</b>                      | <b>100%</b>      | <b>384,455</b>                   | <b>100%</b>      | <b>46,666</b>                               |
| <b>2026</b> | Aircraft           | 249,504                             | 74%              | 300,734                          | 74%              | 51,231                                      |
|             | APUs               | 2,223                               | 1%               | 2,580                            | 1%               | 358                                         |
|             | GSE                | 12,091                              | 4%               | 13,799                           | 3%               | 1,708                                       |
|             | Stationary Sources | 12,940                              | 4%               | 13,399                           | 3%               | 459                                         |
|             | Motor Vehicles     | 55,434                              | 16%              | 63,469                           | 15%              | 8,035                                       |
|             | Other <sup>1</sup> | 5,597                               | 2%               | 11,924                           | 3%               | 6,327                                       |
|             | Construction       | --                                  | 0%               | 2,698                            | 1%               | 2,698                                       |
|             | <b>Total</b>       | <b>337,789</b>                      | <b>100%</b>      | <b>408,603</b>                   | <b>100%</b>      | <b>70,814</b>                               |
| <b>2030</b> | Aircraft           | 249,504                             | 74%              | 331,950                          | 75%              | 82,446                                      |
|             | APUs               | 2,223                               | 1%               | 2,623                            | 1%               | 400                                         |
|             | GSE                | 12,091                              | 4%               | 13,409                           | 3%               | 1,318                                       |
|             | Stationary Sources | 12,940                              | 4%               | 13,399                           | 3%               | 459                                         |
|             | Motor Vehicles     | 55,434                              | 16%              | 59,650                           | 14%              | 4,216                                       |
|             | Other <sup>1</sup> | 5,597                               | 2%               | 18,215                           | 4%               | 12,618                                      |
|             | Construction       | --                                  | 0%               | 2,598                            | 1%               | 2,598                                       |
|             | <b>Total</b>       | <b>337,789</b>                      | <b>100%</b>      | <b>441,844</b>                   | <b>100%</b>      | <b>104,055</b>                              |
| <b>2035</b> | Aircraft           | 249,504                             | 74%              | 395,743                          | 80%              | 146,240                                     |
|             | APUs               | 2,223                               | 1%               | 3,139                            | 1%               | 916                                         |

**Table 3.3-5: Existing and Proposed Project Annual GHG Emissions (in metric tons of CO<sub>2</sub>e)**

| Year        | Source             | Existing (2018 Baseline) Conditions |                  | Proposed Project                 |                  | Increase/ Decrease from Existing Conditions |
|-------------|--------------------|-------------------------------------|------------------|----------------------------------|------------------|---------------------------------------------|
|             |                    | Metric Tons of CO <sub>2</sub> e    | Percent of Total | Metric Tons of CO <sub>2</sub> e | Percent of Total |                                             |
|             | GSE                | 12,091                              | 4%               | 13,475                           | 3%               | 1,384                                       |
|             | Stationary Sources | 12,940                              | 4%               | 13,399                           | 3%               | 459                                         |
|             | Motor Vehicles     | 55,434                              | 16%              | 51,022                           | 10%              | -4,412                                      |
|             | Other <sup>1</sup> | 5,597                               | 2%               | 20,066                           | 4%               | 14,469                                      |
|             | Construction       | --                                  | 0%               | 830                              | 0%               | 830                                         |
|             | <b>Total</b>       | <b>337,789</b>                      | <b>100%</b>      | <b>497,674</b>                   | <b>100%</b>      | <b>159,885</b>                              |
|             |                    |                                     |                  |                                  |                  |                                             |
| <b>2050</b> | Aircraft           | 249,504                             | 74%              | 417,468                          | 82%              | 167,964                                     |
|             | APUs               | 2,223                               | 1%               | 3,417                            | 1%               | 1,195                                       |
|             | GSE                | 12,091                              | 4%               | 12,011                           | 2%               | -80                                         |
|             | Stationary Sources | 12,940                              | 4%               | 13,399                           | 3%               | 459                                         |
|             | Motor Vehicles     | 55,434                              | 16%              | 44,667                           | 9%               | -10,767                                     |
|             | Other <sup>1</sup> | 5,597                               | 2%               | 20,066                           | 4%               | 14,469                                      |
|             | <b>Total</b>       | <b>337,789</b>                      | <b>100%</b>      | <b>511,029</b>                   | <b>100%</b>      | <b>173,240</b>                              |

Source: KB Environmental Sciences, Inc., 2019.

Notes: Totals may reflect rounding.

1. Estimates of emissions resulting from energy consumption associated with electricity usage, water usage (conveyance, consumption and treatment), and solid waste disposal. Emissions associated with natural gas consumption within the built environment are captured by the "Stationary Sources" category, as natural gas consumption is associated with SDIA's existing, on-site Central Utility Plant.

"--" Implies emissions are not applicable.

As shown in Table 3.3-5 above, with the proposed project, future operations at SDIA would result in more GHG emissions than currently occur under baseline (2018) conditions. The future increases in GHG emissions are mostly attributable to increased aircraft activity at SDIA that is anticipated to occur irrespective of the proposed project. The proposed project would also result in construction-related GHG emissions and an increase in stationary source emissions which is attributable to the expansion of SDIA's Central Utility Plant.

### 3.3.7.2 Impact 3.3-1

**Summary Conclusion for Impact 3.3-1: Construction and operation of the proposed project would generate GHGs that may have a significant impact on the environment; therefore, implementation of the proposed project would result in a *significant and unavoidable impact*, as further described below.**

As described in Section 3.3.4, State CEQA Guidelines Section 15064.4 calls for a lead agency to make a “good-faith effort” to “describe, calculate, or estimate” GHG emissions in CEQA environmental documents, and, in assessing significant impacts, should consider the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting, and whether the project emissions would exceed a locally applicable threshold of significance. Section 3.3.7.1, above, provides a quantification and description of the GHG emissions associated with construction and operation of the proposed project. In the absence of any locally applicable quantitative thresholds of significance regarding GHG emissions, the SDCRAA has semi-quantitatively considered the GHG emissions of the proposed project relative to a significance determination for Impact 3.3-1.

As indicated in Table 3.3-5, with the proposed project SDIA-related annual MT of GHG between 2024 and 2050 would range from approximately 384,000 to 511,000, which would be approximately 46,500 to 173,000 annual MT more than existing (2018 baseline) GHG emissions over the same time period. These increases represent a 14 to 51 percent increase in GHG emissions over existing GHG emissions at SDIA.

As indicated in Table 3.3-5, the majority (i.e., over 70 percent) of the GHG emissions associated with future operation of the proposed project are from aircraft, as is also the case for existing (2018 baseline) conditions. Aside from the reduced GHG emissions associated with the design of the proposed project, the SDCRAA does not have authority to regulate aircraft operations or emissions from aircraft engines. It is anticipated, however, that future aircraft-related GHG emissions will be lower than currently projected based on the continuing trend of improvements in aircraft engine design and lighter, more fuel-efficient aircraft, which serve to reduce GHG emissions, even though such improvements are beyond the scope of the proposed project and are not within the control of the SDCRAA.

Notwithstanding all of the above, the increase in GHG emissions over existing (2018 baseline) conditions, ranging from a 14 percent increase in 2024 to a 51 percent increase in 2050, may have a ***significant impact*** on the environment and serve to exacerbate the effects of GCC.

#### **3.3.7.2.1 Mitigation Measures**

Because GHG emissions would exceed the thresholds of significance, 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 stalls 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<sub>2</sub>/mile) by 2030 as scored by [fueleconomy.gov](http://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.)*

#### Quantification of GHG Emission Reductions Associated with Mitigation

Based on the assumptions described above relative to quantification of GHG emission reductions associated with those mitigation measures for which there is currently a reasonable basis to estimate the amount of reduction, Table 3.3-6 delineates GHG emissions, by source at each horizon year, for existing (2018 baseline) conditions, implementation of the proposed project without mitigation, and implementation of the proposed project with mitigation, and the resultant amounts of GHG emission reductions.

**Table 3.3-6: Annual GHG Emissions (in metric tons of CO<sub>2</sub>e) with Mitigation**

| Year | Source             | Existing (2018 Baseline) Conditions | Metric Tons of CO <sub>2</sub> e    |                                  |                    |
|------|--------------------|-------------------------------------|-------------------------------------|----------------------------------|--------------------|
|      |                    |                                     | Proposed Project Without Mitigation | Proposed Project With Mitigation | Emission Reduction |
| 2024 | Aircraft           | 249,504                             | 285,313                             | 285,313                          | 0                  |
|      | APUs               | 2,223                               | 2,505                               | 2,505                            | 0                  |
|      | GSE                | 12,091                              | 12,471                              | 8,821                            | -3,650             |
|      | Stationary Sources | 12,940                              | 13,399                              | 13,399                           | 0                  |
|      | Motor Vehicles     | 55,434                              | 55,991                              | 52,610                           | -3,381             |
|      | Other <sup>1</sup> | 5,597                               | 8,149                               | 8,149                            | 0                  |
|      | Construction       | --                                  | 6,523                               | 6,523                            | 0                  |
|      | <b>Total</b>       | <b>337,789</b>                      | <b>384,351</b>                      | <b>377,321</b>                   | <b>-7,030</b>      |
| 2026 | Aircraft           | 249,504                             | 300,734                             | 300,734                          | 0                  |
|      | APUs               | 2,223                               | 2,580                               | 2,580                            | 0                  |
|      | GSE                | 12,091                              | 13,799                              | 8,948                            | -4,851             |

**Table 3.3-6: Annual GHG Emissions (in metric tons of CO<sub>2</sub>e) with Mitigation**

| Year        | Source             | Existing<br>(2018<br>Baseline)<br>Conditions | Metric Tons of CO <sub>2</sub> e       |                                     |                    |
|-------------|--------------------|----------------------------------------------|----------------------------------------|-------------------------------------|--------------------|
|             |                    |                                              | Proposed Project<br>Without Mitigation | Proposed Project<br>With Mitigation | Emission Reduction |
|             | Stationary Sources | 12,940                                       | 13,399                                 | 13,399                              | 0                  |
|             | Motor Vehicles     | 55,434                                       | 63,469                                 | 53,777                              | -9,692             |
|             | Other <sup>1</sup> | 5,597                                        | 11,924                                 | 11,924                              | 0                  |
|             | Construction       | --                                           | 2,698                                  | 2,698                               | 0                  |
|             | <b>Total</b>       | <b>337,789</b>                               | <b>408,603</b>                         | <b>394,060</b>                      | <b>-14,543</b>     |
| <b>2030</b> | Aircraft           | 249,504                                      | 331,950                                | 331,950                             | 0                  |
|             | APUs               | 2,223                                        | 2,623                                  | 2,623                               | 0                  |
|             | GSE                | 12,091                                       | 13,409                                 | 8,356                               | -5,053             |
|             | Stationary Sources | 12,940                                       | 13,399                                 | 13,399                              | 0                  |
|             | Motor Vehicles     | 55,434                                       | 59,650                                 | 54,419                              | -5,231             |
|             | Other <sup>1</sup> | 5,597                                        | 18,215                                 | 18,215                              | 0                  |
|             | Construction       | --                                           | 2,598                                  | 2,598                               | 0                  |
|             | <b>Total</b>       | <b>337,789</b>                               | <b>441,844</b>                         | <b>431,560</b>                      | <b>-10,284</b>     |
| <b>2035</b> | Aircraft           | 249,504                                      | 395,743                                | 395,743                             | 0                  |
|             | APUs               | 2,223                                        | 3,139                                  | 3,139                               | 0                  |
|             | GSE                | 12,091                                       | 13,475                                 | 8,798                               | -4,677             |
|             | Stationary Sources | 12,940                                       | 13,399                                 | 13,399                              | 0                  |
|             | Motor Vehicles     | 55,434                                       | 51,022                                 | 50,991                              | -31                |
|             | Other <sup>1</sup> | 5,597                                        | 20,066                                 | 20,066                              | 0                  |
|             | Construction       | --                                           | 830                                    | 830                                 | 0                  |
|             | <b>Total</b>       | <b>337,789</b>                               | <b>497,674</b>                         | <b>492,966</b>                      | <b>-4,708</b>      |
| <b>2050</b> | Aircraft           | 249,504                                      | 417,468                                | 417,468                             | 0                  |
|             | APUs               | 2,223                                        | 3,417                                  | 3,417                               | 0                  |
|             | GSE                | 12,091                                       | 12,011                                 | 8,798                               | -3,213             |
|             | Stationary Sources | 12,940                                       | 13,399                                 | 13,399                              | 0                  |

**Table 3.3-6: Annual GHG Emissions (in metric tons of CO<sub>2</sub>e) with Mitigation**

| Year | Source             | Existing<br>(2018<br>Baseline)<br>Conditions | Metric Tons of CO <sub>2</sub> e       |                                     |                    |
|------|--------------------|----------------------------------------------|----------------------------------------|-------------------------------------|--------------------|
|      |                    |                                              | Proposed Project<br>Without Mitigation | Proposed Project<br>With Mitigation | Emission Reduction |
|      | Motor Vehicles     | 55,434                                       | 44,667                                 | 44,636                              | -31                |
|      | Other <sup>1</sup> | 5,597                                        | 20,066                                 | 20,066                              | 0                  |
|      | <b>Total</b>       | <b>337,789</b>                               | <b>511,028</b>                         | <b>507,784</b>                      | <b>-3,244</b>      |

Source: KB Environmental Sciences, Inc., 2019.

Notes: Totals may reflect rounding.

1. Estimates of emissions resulting from energy consumption associated with electricity usage, water usage (conveyance, consumption and treatment), and solid waste disposal. Emissions associated with natural gas consumption within the built environment are captured by the “Stationary Sources” category, as natural gas consumption is associated with SDIA’s existing, on-site Central Utility Plant.

“-” Implies emissions are not applicable.

As shown in Table 3.3-6, implementation of mitigation measures for which GHG emission reductions can be quantified at this time would result in reductions of GSE GHG emissions and motor vehicle GHG emissions.

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 in Section 3.2 Air Quality presents a list of potential measures for the reduction of air pollutants emissions, including criteria pollutant emissions and GHG emissions, that come from a variety of sources such as the FAA, the ACRP,<sup>77</sup> 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 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.

### 3.3.7.2.2 Significance of Impact After Mitigation

Implementation of Mitigation Measures MM-AQ/GHG-1 through MM-AQ/GHG-10 would serve to reduce the GHG emissions associated with construction and operation of the proposed project. These measures provide a wide variety of requirements and options for achieving GHG reductions; however, the vast majority of GHG emissions associated with operation of the proposed project are from sources that the SDCRAA has no control over (i.e., Scope 3 GHG emissions), such as aircraft,

<sup>77</sup> 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.

APUs, and motor vehicles. As described in Section 3.2, Air Quality, the USEPA establishes the overall policies and regulations for protecting air quality nationwide, which include 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 federal 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 with respect to aircraft engine emissions unless such standard is identical to the USEPA's standards.

Based on the above, it is considered unlikely that the increment of GHG emissions associated with construction and operation of the proposed project could be substantially reduced to a less-than-significant level; therefore, the proposed project would result in a ***significant and unavoidable impact***.

### 3.3.7.3 Impact 3.3-2

**Summary Conclusion for Impact 3.3-2: Construction and operation of the proposed project would conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs; therefore, implementation of the proposed project would result in a *significant and unavoidable impact*, as further described below.**

Table 3.3-7 summarizes the proposed project's relationship to the various plans, policies, and regulations described earlier in Section 3.3.4 that serve to reduce GHG emissions and indicates whether the proposed project would conflict with them.

Sections 3.3.3 and 3.3.4 above, cites several methods of estimating project effects on GHG emissions and climate change as well as state, regional, and local bills, orders, standards and plans for which the goal is the reduction of GHGs. Table 3.3-7 lists those that are relevant to SDIA in general and those that are specific to the proposed project.

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level         | Regulatory Framework                          | Plan, Policy, or Regulation                                                                                         | Project's Relationship                         | Is the Project in Conflict with Plan, Policy, or Regulation? |
|---------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------|
| International | IPCC, UNFCCC, Kyoto Protocol, Paris Agreement | U.S. participation in various organizations and agreements                                                          | Not within scope of project or SDCRAA control. | No                                                           |
| Federal       | USEPA Endangerment Findings                   | Prerequisite for the USEPA to implement GHG emissions standards for vehicles                                        | Not within scope of project or SDCRAA control. | No                                                           |
|               | GHG and Fuel Efficiency Standards             | Federal establishment of GHG standards for cars, trucks, medium- and heavy-duty engines, and construction equipment | Not within scope of project or SDCRAA control. | No                                                           |

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level | Regulatory Framework                             | Plan, Policy, or Regulation                                                                                                                                                                                                                                                                                                                                                                                                                                     | Project's Relationship                                                                                                                                                                                                                                                 | Is the Project in Conflict with Plan, Policy, or Regulation? |
|-------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|       | Aviation Greenhouse Gas Emissions Reduction Plan | Identifies actions and progress toward GHG emissions reductions in areas such as Aircraft and Engine Technology, Operational Improvements; Alternative Fuels Development and Deployment; Policies, Standards, and Measures; and, Scientific Understanding and Modeling/Analysis                                                                                                                                                                                 | Not within scope of project or SDCRAA control.                                                                                                                                                                                                                         | No                                                           |
|       | FAA Programs/ Efforts                            | Identifies programs and efforts to reduce carbon emissions including, Airport Improvement Program (AIP) grants, Voluntary Airport Low Emissions (VALE) program funding, and the Airport ZEV and Infrastructure Pilot                                                                                                                                                                                                                                            | Not within scope of project or SDCRAA control; however, it is noted that SDCRAA has utilized grant funding from the FAA before under these programs.                                                                                                                   | No                                                           |
| State | California Environmental Quality Act (CEQA)      | Requires the consideration of reasonably foreseeable project-related adverse environmental effects. Relative to GHG, requires lead agencies to consider: extent to which the project may increase/reduce GHG emissions; whether the project emissions would exceed a locally applicable threshold of significance; and, the extent to which the project would comply with regulations, requirements, or plans for the reduction or mitigation of GHG emissions. | Section 3.3 of this EIR addresses those CEQA requirements.                                                                                                                                                                                                             | No                                                           |
|       | Title 24 Energy Standards                        | Ensures new and existing buildings achieve energy efficiency.                                                                                                                                                                                                                                                                                                                                                                                                   | All Title 24 energy requirements would be met. Additionally, as part of their AQMP, SDIA mandates the installation of cool roofs or solar panels for new construction and an identified initiative is for new buildings to achieve at least LEED Silver certification. | No                                                           |

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level | Regulatory Framework                | Plan, Policy, or Regulation                                                                                                                                                                    | Project's Relationship                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Is the Project in Conflict with Plan, Policy, or Regulation? |
|-------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|       | California Green Building Standards | Ensures new and existing buildings achieve various sustainable design parameters.                                                                                                              | The buildings proposed as part of project would be constructed to meet CALGreen's mandatory building standards. In some cases, the project would also integrate voluntary CALGreen measures into its design and construction.                                                                                                                                                                                                                                                                                                     | No                                                           |
|       | Executive Order S-3-05              | Establishes statewide GHG reduction targets, for all of California, including by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. | As compared to SDIA's existing emissions in 2018, construction and operation of the proposed project would result in SDIA's GHG emissions in 2024 being 14 percent higher than existing, in 2026 being 22 percent higher than existing, in 2030 being 31 percent higher than existing, in 2035 being 47 percent higher than existing, and in 2050 being 51 percent higher than existing. The proposed project's increase in GHG emissions above existing levels may conflict with achievement of statewide GHG reduction targets. | Yes                                                          |
|       | Executive Order B-30-15             | Establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030.                                                                                                          | Same as above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Yes                                                          |
|       | Executive Order B-55-18             | Establishes a statewide GHG reduction target of carbon neutrality by 2045.                                                                                                                     | Same as above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Yes                                                          |
|       | SB 32                               | Establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030.                                                                                                          | Same as above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Yes                                                          |
|       | AB 32                               | Establishes a statewide GHG reduction target of 1990 levels by 2020.                                                                                                                           | Same as above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Yes                                                          |

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level | Regulatory Framework                                 | Plan, Policy, or Regulation                                                                                                                                                                                                                   | Project's Relationship                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Is the Project in Conflict with Plan, Policy, or Regulation? |
|-------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|       | SB 375                                               | Requires each MPO in the state to develop Sustainable Communities Strategies through integrated land use and transportation planning in order to attain per capita GHG reduction targets for passenger vehicles set by CARB by 2020 and 2035. | SANDAG has prepared the RTP/SCS and the Regional Plan for San Diego County, which set forth the strategy for achieving the required GHG reduction from passenger vehicles. Future growth at SDIA, of which the proposed project is a part, is accounted for in the RTP/SCS and Regional Plan. Specifically, the RASP in the RTP/SCS and Regional Plan forecasts future annual aircraft operations at SDIA in 2030 to be 309,800 whereas the approved Aviation Demand Forecast for the ADP projects 269,100 annual operations in 2030 and 290,100 operations at project buildout in 2050. | No                                                           |
|       | AB 1493                                              | Requires CARB to adopt regulations for GHG reductions in passenger vehicles and light-duty trucks.                                                                                                                                            | Not within scope of project or SDCRAA control.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No                                                           |
|       | California Advanced Clean Cars Program               | Reduces emissions from light- and medium-duty vehicles and requires manufacturers to produce an increasing number of ZEVs.                                                                                                                    | Not within scope of project or SDCRAA control. Notwithstanding, SDCRAA promotes use of alternatively fueled vehicles, including ZEVs, by airport service providers (one goal being the conversion of all permitted shuttles and taxis to alternative fuels), by passengers/employees (e.g., electric vehicle charging stations have been installed in parking lots).                                                                                                                                                                                                                     | No                                                           |
|       | Executive Order S-01-07 and Low Carbon Fuel Standard | Establishes statewide goal to reduce carbon intensity of transportation fuels sold in California.                                                                                                                                             | Not within scope of project or SDCRAA control.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No                                                           |

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level           | Regulatory Framework                                                      | Plan, Policy, or Regulation                                                                                                                                                            | Project's Relationship                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Is the Project in Conflict with Plan, Policy, or Regulation? |
|-----------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                 | Renewable Portfolio Standard                                              | Requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide designated percentages of their supply from renewable sources. | Not within scope of project or SDCRAA control. However, it is noted that approximately 85 percent of SDIA's electricity comes from renewables; and, with implementation of the recommended mitigation, 100 percent of the electricity would be sourced from renewables.                                                                                                                                                                                                                                                                                                                                  | No                                                           |
|                 | Zero-Emission Airport Shuttle Regulation-CARB Rule (Release Number 19-30) | Requires fixed route airport shuttles serving the state's 13 largest airports to transition to 100 percent zero-emission vehicles (ZEVs) by 2035.                                      | The proposed project includes the transition to 100 percent ZEVs as part of the 2035 condition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No                                                           |
|                 | Innovative Clean Transit (ICT) Regulation                                 | Requires all statewide public transit agencies to gradually transition to a 100 percent zero-emission bus (ZEB) fleet by 2040.                                                         | The proposed project includes the transition to 100 percent ZEBs as part of the 2050 condition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No                                                           |
| <b>Regional</b> | San Diego Association of Governments (SANDAG) Regional Plan               | Seeks to balance the evolution of the region's transportation system to accommodate growth while reducing GHG.                                                                         | As indicated above relative to SB 375, emissions from passenger vehicles associated with future growth at SDIA, of which the proposed ADP project is a part, is accounted for in the Regional Plan, which also includes the San Diego RTP/SCS. Additionally, SDCRAA is working with its regional partners, including, but not limited to, SANDAG, in formulating plans for transportation and transit improvements for SDIA that serve to reduce GHG emissions, and, as described in Section 3.3.4.5, SDCRAA has entered into an agreement with partner airlines to help fund those future improvements. | No                                                           |

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level | Regulatory Framework                              | Plan, Policy, or Regulation                                                                                                                                                                                                                                                                                                                                                                                                                               | Project's Relationship                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Is the Project in Conflict with Plan, Policy, or Regulation? |
|-------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|       | San Diego County Climate Action Plan (County CAP) | Identifies strategies and measures to meet the County's targets to reduce GHG emissions by 2020 and 2030, consistent with the state's legislative GHG reduction targets, and demonstrates progress towards the state's 2050 GHG reduction goal.                                                                                                                                                                                                           | Not applicable; however, the project is consistent with SANDAG growth projections.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No                                                           |
| Local | City of San Diego General Plan: Mobility Element  | Promote a balanced, multi-modal transportation network while minimizing environmental and neighborhood impacts.                                                                                                                                                                                                                                                                                                                                           | The proposed improvements at SDIA are consistent with the City's General Plan because the improvements would serve forecasted passenger and cargo needs at SDIA.                                                                                                                                                                                                                                                                                                                                                                            | No                                                           |
|       | City of San Diego Climate Action Plan (City CAP)  | Consistency with existing City land use designations.                                                                                                                                                                                                                                                                                                                                                                                                     | Not applicable; however, the project is consistent with SANDAG growth projections, which include City land use designations. It should be noted that, relative to GHG emissions associated with existing land uses, the City CAP does not include emissions from aircraft operations at SDIA, which comprise the majority (i.e., 74 percent) of GHG emissions from the Airport; hence, those emissions now and in the future with implementation of the proposed project would not conflict with the emissions assumptions in the City CAP. | No                                                           |
|       |                                                   | Consistency with City CAP Measures Checklist, which for Non-Residential Projects includes: <ul style="list-style-type: none"> <li>▪ Cool/Green Roofs;</li> <li>▪ Low-flow Plumbing Fixtures and Appliances;</li> <li>▪ Electric Vehicle Charging;</li> <li>▪ Bicycle Parking Spaces;</li> <li>▪ Shower Facilities;</li> <li>▪ Designated Parking from Low-Emission, Fuel Efficient, and Carpool/ Vanpool Vehicles; and</li> <li>▪ TDM Program.</li> </ul> | Mitigation Measures MM-AQ/GHG-1 through MM-AQ/GHG-10 provide measures comparable to the City CAP Measures Checklist items, and include several additional measures above and beyond the items in the Checklist.                                                                                                                                                                                                                                                                                                                             | No                                                           |

**Table 3.3-7: Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions**

| Level | Regulatory Framework                                                    | Plan, Policy, or Regulation                                                                                                                                                                                                                          | Project's Relationship                                                                                                                                                                                                                                                                                                                                                                                              | Is the Project in Conflict with Plan, Policy, or Regulation? |
|-------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|       | Port of San Diego Climate Action Plan (Port CAP)                        | The Port CAP includes policies and measures related to: transportation and land use planning; energy conservation and efficiency; water conservation and recycling; alternative energy generation; waste reduction and recycling; and miscellaneous. | As described in Table 3.2-17 in Section 3.2 Air Quality, there are numerous existing programs at SDIA, as well as project features and project mitigation measures related to transportation, energy conservation and efficiency, water conservation and recycling, alternative energy use, waste reduction and recycling, and other measure that serve to reduce air pollutant emissions, including GHG emissions. | No                                                           |
|       | San Diego County Regional Airport Authority (SDCRAA) Plans and Programs | MOU for Reduction of GHG, SDCRAA AQMP, SDCRAA Sustainability Policy, Climate Resilience Plan.                                                                                                                                                        | The proposed project includes features and improvements related to SDCRAA's plans and programs.                                                                                                                                                                                                                                                                                                                     | No                                                           |

Source: KB Environmental Sciences, Inc., CDM Smith, May 2019.

As indicated above in Table 3.3-7, implementation of the proposed project would not conflict with most plans, policies, and regulations adopted for the purpose of reducing GHG emissions. For the areas where the proposed project is indicated as posing a conflict related to EO S-3-05, EO B-30-15, SB 32, and AB 32, it is attributable to future growth projected to occur at SDIA, irrespective of the proposed project. EO S-3-05, EO B-30-15, SB 32, and AB 32 each set forth numeric goals of reducing future GHG emissions to specific levels below GHG emission levels in 1990, whereas GHG emissions at SDIA in future horizon years (i.e., 2024, 2026, 2030, and 2035) would all be greater than the GHG emissions in 2018 (e.g., greater than 1990 GHG emissions levels). It should be noted, however, that such future growth in activity at SDIA is acknowledged and included in the SANDAG Regional Plan and SANDAG RTP/SCS. Notwithstanding all of the above, the proposed project conflicts with some of the identified regulations and plan adopted for the purpose of reducing GHG emissions; therefore, it is a **significant impact**.

### 3.3.7.3.1 Mitigation Measures

Implementation of Mitigation Measures MM-AQ/GHG-1 through MM-AQ/GHG-10 and MM-TDM-1, presented above in the evaluation of Impact 3.3-1, would reduce the GHG emissions that result in the significant impact for Impact 3.3-2.

### 3.3.7.3.2 Significance of Impact After Mitigation

As noted above in the evaluation of Impact 3.3-1, implementation of Mitigation Measures MM-AQ/GHG-1 through MM-AQ/GHG-10 and MM-TDM-1 would serve to reduce the GHG emissions associated with construction and operation of the proposed project; however, , the vast majority of

GHG emissions associated with operation of the proposed project are from sources that the SDCRAA has no control over (i.e., Scope 3 GHG emissions), such as aircraft, APU, and motor vehicles, as described above.

Based on the above, it is considered unlikely that the increment of GHG emissions associated with construction and operation of the proposed project could be reduced to a less-than-significant level; therefore, the proposed project would result in a **significant and unavoidable impact**.

### 3.3.8 Summary of Impact Determinations

Table 3.3-8 summarizes the impact determinations of the proposed project-related GHG emissions, as described above in the detailed discussion in Section 3.3.7. Identified potential impacts are based on the significance criteria presented in Section 3.3.6, the information and data sources cited throughout Section 3.3, and the professional judgment of the report preparers, as applicable.

**Table 3.3-8: Summary Matrix of Potential Impacts and Mitigation Measures Associated with the Proposed Project Related to Greenhouse Gases and Climate Change**

| Environmental Impacts                                                                                                                                                                                                                                                                                            | Impact Determination                                                        | Mitigation Measures                                                                                                  | Impacts after Mitigation                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Impact 3.3-1: Construction and operation of the proposed project would generate GHGs that may have a significant impact on the environment; therefore, implementation of the proposed project would result in a <i>significant and unavoidable impact</i>.</b>                                                | Construction:<br>Significant Impact<br><br>Operation:<br>Significant Impact | Mitigation Measures<br>MM-AQ/GHG-1 through MM-AQ/GHG-10<br><br>MM-TDM-1: TDM and Transit Measures (see Section 3.14) | Construction:<br>Significant and Unavoidable<br><br>Operation:<br>Significant and Unavoidable |
| <b>Impact 3.3-2: Construction and operation of the proposed project would conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs; therefore, implementation of the proposed project would result in a <i>significant and unavoidable impact</i>.</b> | Construction:<br>Significant Impact<br><br>Operation:<br>Significant Impact | Mitigation Measures<br>MM-AQ/GHG-1 through MM-AQ/GHG-10<br><br>MM-TDM-1: TDM and Transit Measures (see Section 3.14) | Construction:<br>Significant and Unavoidable<br><br>Operation:<br>Significant and Unavoidable |

#### 3.3.8.1 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. This measure is considered feasible.

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<sub>2</sub>/mile) by 2030 as scored by [fuelconomy.gov](http://fuelconomy.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.

In addition to Mitigation Measures MM-AQ/GHG-1 through MM-AQ/GHG-10, implementation of the transportation demand management measures identified in Mitigation Measure MM-TDM-1 in Section 3.14 would also serve to reduce GHG emissions.

### 3.3.9 Significant Unavoidable Impacts

Implementation of the proposed project would result in a *significant and unavoidable impact* relative to GHG emissions.