GREENHOUSE GAS EMISSIONS ANALYSIS
for the
TOPGOLF ONTARIO PROJECT
4th STREET & N. ARCHIBALD AVENUE
ONTARIO, SAN BERNARDINO COUNTY, CA 91764

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Table of Contents

List of Tables

List of Figures

Appendices

A. GREENHOUSE GAS EMISSIONS ANALYSIS

1. INTRODUCTION

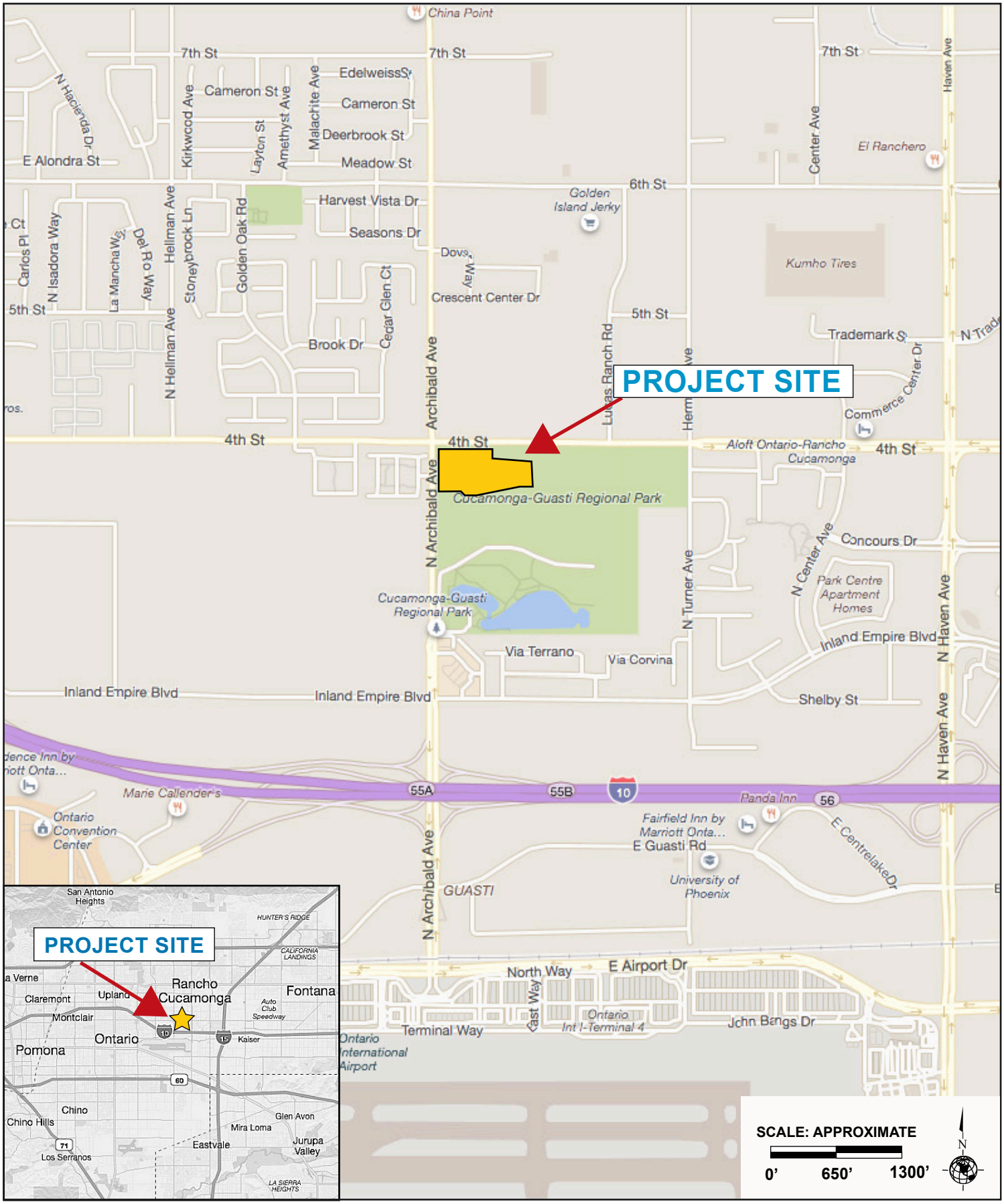
This report presents the results of the greenhouse gas (GHG) analysis, prepared by Parker Environmental Consultants, LLC, for the proposed Topgolf Ontario Project ("Proposed Project"), located on the southeast corner of 4th Street and N. Archibald Avenue ("Project Site"). The purpose of this GHG Analysis is to evaluate the net new Proposed Project-related construction and operational emissions and determine the level of GHG impacts as a result of construction and operation of the Proposed Project.

A. Project Site Location and Setting

As shown in Figure 1, Project Location Map, on page 2, the Project Site is located on the southeast corner of 4th Street and N. Archibald Avenue in the City of Ontario within the County of San Bernardino. The Project Site comprises of two parcels and occupies approximately 13.31 acres (579,698 square feet) of vacant, undeveloped land, on the northwestern-most portion of the Cucamonga-Guasti Regional Park. Industrial land uses are located north of the Project Site, across 4th Street. Multi-family residential buildings are located west of the Project Site, across N. Archibald Avenue. The remaining portions of the Cucamonga-Guasti Regional Park are located east and south of the Project Site, which contains park amenities and an existing flood control district basin to the south of the Project Site. The San Bernardino 10 Freeway (I-10) is located approximately 0.7 miles south of the Project Site and runs in an east-west direction.

B. Project Description

The Proposed Project would consist of a Topgolf facility which features climate-controlled hitting bays where players hit golf balls with embedded microchips into an outdoor outfield enclosed by perimeter netting. The Topgolf facility would feature a five patent technology platform gaming system in which players hit golf balls embedded with a radio frequency identification microchip in a 240-yard outfield that features eleven targets at various distances. Microchips in the balls track each player's shot in real time, giving points for accuracy. The Proposed Project would consist of an approximately 67,521 square-foot three-story main building, outdoor patio, and an approximately 5-acre outdoor driving range outfield. The facility would be located so that the tee line is facing east, away from the afternoon sun. The proposed 67,521 square-foot building features 102 hitting bays, including bays designated for golf instruction and team practice. The hitting bays include golf clubs, comfortable seating, and television screens to monitor sporting events and tract Topgolf scoring. Figure 2, on page 3, illustrates the site plan for the Proposed Project.



Source: Bing Maps, 2018.

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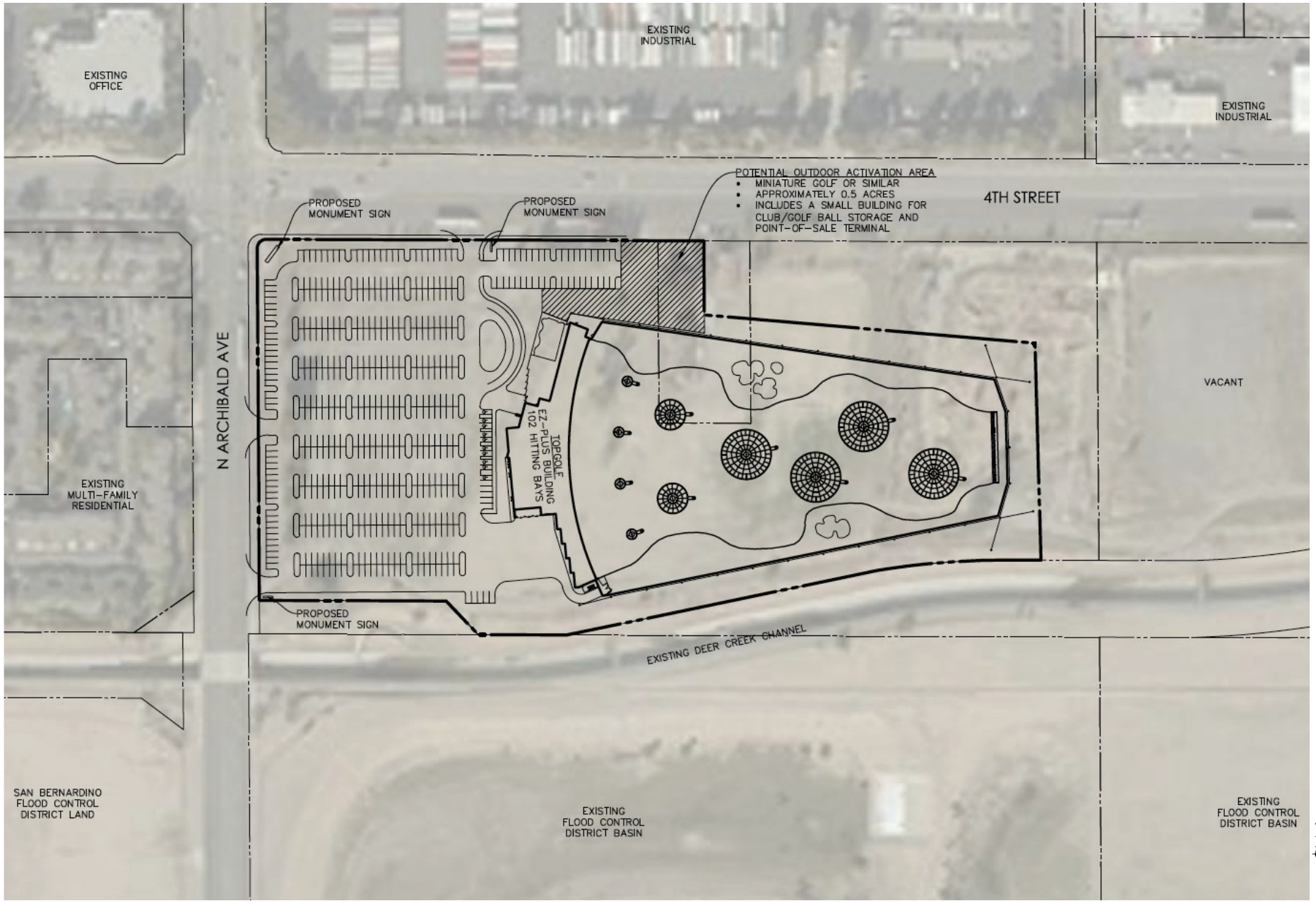
Figure 1
Project Location Map



Source: ARCO/Murray Design Build, June 20, 2018.

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Figure 2
Proposed Plot Plan

The Proposed Project would also offer a beverage station/service bar and lounge with a full-service bar and restaurant. The Proposed Project would also provide an outdoor patio and rooftop terrace, furnished with tables, couches, and fire pits, with food service available. The spaces would be used for banquets, corporate events, and other event meetings, and can accommodate live music for events. Additionally, the Proposed Project features an approximately half acre miniature golf course adjacent to the outfield and main building. The miniature golf course would include approximately 9-18 holes and a 500 square foot building for golf clubs and ball storage and a point-of-sale terminal. An approximate breakdown of square footages for the key various use types within the building is provided in Table 1, below. A total of 524 surface parking spaces would be provided for the Proposed Project on the western portion of the Project Site, fronting N. Archibald Avenue.

Table 1
Proposed Development Program

Floor Level	Area (square feet)
Ground Level	22,079
Middle Level	23,082
Upper Level	22,360
TOTAL:	**67,521 sf**

Source: Aria Group, March 2019.

C. Project Requirements

The Proposed Project would be required to comply with regulations imposed by the State of California, the South Coast Air Quality Management District (SCAQMD), and the City of Ontario aimed at reducing GHG emissions. These regulations that are applicable to the Proposed Project include AB 32, California Green Building Code, the SB 32 Scoping Plan, SCAQMD Rules, SCAG's 2016-2040 RTP/SCS, and the City of Ontario Community Climate Action Plan (CCAP). These regulations are discussed in more detail below within the "Regulatory Framework" subheading.

2. CLIMATE CHANGE SETTING

A. Overview of Greenhouse Gas Emissions

Earth's natural warming process is known as the "greenhouse effect." This greenhouse effect compares the Earth and the atmosphere surrounding it to a greenhouse with glass panes. The glass allows solar radiation (sunlight) into Earth's atmosphere, but prevents radiated heat from escaping, thus warming Earth's atmosphere. GHGs keep the average surface temperature of the Earth to approximately 60 degrees Fahrenheit. However, excessive concentrations of GHGs in the atmosphere can result in increased global mean temperatures, with associated adverse climatic and ecological consequences. Scientists studying the particularly rapid rise in global temperatures have determined that human activity has resulted in increased emissions of GHGs, primarily from the burning of fossil fuels (during motorized transport, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.), deforestation, agricultural activity, and the decomposition of solid waste.

Scientists refer to the global warming context of the past century as the "enhanced greenhouse effect" to distinguish it from the natural greenhouse effect. While the increase in temperature is known as "global warming," the resulting change in weather patterns is known as "global climate change." Global climate change is evidenced in changes to global temperature rise, warming oceans, shrinking ice sheets, glacial retreat, decreased snow cover, sea level rise, declining Arctic sea ice, extreme weather events, and ocean acidification.

GHG emissions refer to a group of emissions that have the potential to trap heat in the atmosphere and consequently affect global climate conditions. Scientific studies have concluded that there is a direct link between increased emission of GHGs and long-term global temperature. The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), nitrogen trifluoride (NF_3), and water vapor (H_2O). A general description of each GHG discussed in this section is provided in Table 2, Description of Identified Greenhouse Gases, below.

CO_2 is the reference gas for climate change because it is the predominant greenhouse gas emitted. CO_2 is the most abundant GHG present within the atmosphere. Other GHGs present within the atmosphere are less abundant, but have higher global warming potential (GWP) than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking food are the primary sources of GHG emissions. To account for the varying warming potential of different GHGs, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e).

Table 2
Description of Identified Greenhouse Gases

Greenhouse Gas	General Description
CO_2	CO_2 is an odorless, colorless GHG, which has both natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing; anthrogenic sources of CO_2 are burning coal, oil, natural gas, and wood.
CH_4	CH_4 is a flammable gas and is the main component of natural gas. When one molecule of CH_4 is burned in the presence of oxygen, one molecule of CO_2 and two molecules of water are released. A natural source of CH_4 is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH_4, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
N_2O	N_2O is a colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, race cars, and as an aerosol spray propellant.
HFCs	HFCs are synthetic man-made chemicals that are used as a substitute for chlorofluorocarbons (CFCs) for automobile air conditioners and refrigerants. CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987.
PFCs	PFCs have stable molecular structures and do not break down though the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above the Earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
SF_6	SF_6 is an inorganic, odorless, colorless, non-toxic, and nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Source: Association of Environment Professionals, Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, Final, June 29, 2007.

B. Global Warming Potential

Global Warming Potential (GWP) is one type of simplified index based upon radiative properties that is used to estimate the potential future impacts of emissions of different gases upon the climate system in a relative sense. GWP is based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay of each gas over a specified time period (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. For

reference, a summary of the atmospheric lifetime and GWP of selected gases is presented at Table 3, Atmospheric Lifetimes and Global Warming Potentials. As indicated, GWP ranges from 1 (CO_2) to 22,800 (SF_6).

Table 3
Atmospheric Lifetimes and Global Warming Potentials

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
CO_2	50 – 200	1
CH_4	12 (+/-3)	25
N_2O	120	298
HFC-23	264	14,800
HFC-134a	14.6	1,430
HFC-152a	1.5	124
PFC-14: Tetrafluoromethane (CF_4)	50,000	7,390
PFC-116: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluorides (SF_6)	3,200	22,800
Source: IPCC, 2007		

C. Projected Impacts of Climate Change in California

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model it, the uncertainty surrounding climate change may never be completely eliminated. Nonetheless, the IPCC's *Fifth Assessment Report, Summary for Policy Makers* states that, "it is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forces together." A report from the National Academy of Sciences concluded that 97 to 98 percent of the climate researchers most actively publishing in the field support the tenets of the IPCC in that climate change is very likely caused by human (i.e., anthropogenic) activity.

According to California Air Resources Board (CARB), the potential impacts in California due to global climate change may include: loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; more large forest fires; more drought years; increased erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation. Below is a summary of some of the potential effects that could be experienced in California as a result of global warming and climate change.

a. Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect and, therefore, its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would exacerbate air quality. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus reducing the pollution associated with wildfires.

In 2009, the California Natural Resources Agency (CNRA) published the *California Climate Adaptation Strategy* as a response to the Governor's Executive Order S-13-2008. The CNRA report lists specific recommendations for state and local agencies to best adapt to the anticipated risks posed by a changing climate. In accordance with the *California Climate Adaptation Strategy*, the California Energy Commission (CEC) was directed to develop a website on climate change scenarios and impacts that would be beneficial for local decision makers. The website, known as Cal-Adapt, became operational in 2011. The information provided on the Cal-Adapt website represents a projection of potential future climate scenarios. The data are comprised of the average values (i.e., temperature, sea-level rise, snowpack) from a variety of scenarios and models and are meant to illustrate how the climate may change based on a variety of different potential social and economic factors. According to the Cal-Adapt website, the portion of the City of Ontario in which the Project Site is located could result in an annual average maximum temperature increase of approximately 84.0°F by 2070–2099, compared to the historical annual mean of 78.2°F between 1961–1990 period.

b. Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, "Considerable uncertainty about precise impacts of climate change on California hydrology and water resources will remain until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change." For example, some studies identify little change in total annual precipitation in projections for California while others show significantly more precipitation. Warmer, wetter winters would increase the amount of runoff available for groundwater recharge; however, this additional runoff would occur at a time when some basins are either being recharged at their maximum capacity or are already full. Conversely, reductions in spring runoff and higher evapotranspiration because of higher temperatures could reduce the amount of water available for recharge.

The California Department of Water Resources report on climate change and effects on the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta, concludes that "climate change will likely have a significant effect on California's future water resources…[and] future water demand." It also reports that "much uncertainty about future water demand [remains], especially

[for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes are uncertain." It also reports that the relationship between climate change and its potential effect on water demand is not well understood, but "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future." Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows. In its *Fifth Assessment Report*, the IPCC states "Changes in the global water cycle in response to the warming over the 21st century will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions."

c. Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

d. Agriculture

California has a $30 billion agricultural industry that produces half the country's fruit and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus affect their quality.

e. Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise by 2-11.5°F (1.1-6.4°C) by 2100, with significant regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as 2 feet along most of the United States coastline. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage.

D. California's Climate Adaptation Strategy

Climate change risks are evaluated using two distinct approaches: (1) projecting the amount of climate change that may occur using computer-based global climate models; and (2) assessing the natural or human system's ability to cope with and adapt to change by examining past experience with climate variability and extrapolating the data to understand how systems may respond to the additional impact of climate change. The major anticipated climate changes expected in California include increases in temperature, decreases in precipitation, particularly as snowfall, and increases in sea level, as discussed above. These gradual changes will also lead to an increasing number of extreme events, such as heat waves, wildfires, droughts, and floods, which have the potential to impact public health, ocean and coastal resources, water supply, agriculture, biodiversity, and transportation and energy infrastructure.

Because climate change is already affecting California and current emissions will continue to drive climate change in the coming decades, regardless of any emission reduction measures that may be adopted, the necessity of adaptation to the impacts of climate change is recognized by the State of California. As directed by Executive Order S-13-08, California Natural Resources Agency published the *2009 California Climate Adaptation Strategy* (2009 CAS), which summarizes the best-known sciences to assess the vulnerability of the state to climate change impact, and outlines possible solutions that can be implemented within and across state agencies to promote resiliency. The goals of the strategy are to analyze risks and vulnerabilities and identify strategies to reduce the risks. Once the strategies are identified and prioritized, government resources would be identified. Finally, the strategy includes identifying research needs and educating the public.

To ensure a coordinated effort in adapting to the unavoidable impacts of climate change, the 2009 CAS was developed using a set of guiding principles:

- Use the best available science in identifying climate change risks and adaptation strategies.
- Understand that data continues to be collected and that knowledge about climate change is still evolving. As such, an effective adaption strategy is "living" and will itself be adapted to account for new science.
- Involve all relevant stakeholders in identifying, reviewing, and refining the state's adaptation strategy.
- Establish and retain strong partnerships with federal, state, and local governments, tribes, private business and landowners, and non-governmental organizations to develop and implement adaptation strategy recommendations over time.
- Give priority to adaptation strategies that initiate, foster, and enhance existing efforts that improve economic and social well-being, public safety and security, public health, environmental justice, species and habitat protection, and ecological function.
- When possible, give priority to adaptation strategies that modify and enhance existing policies rather than solutions that require new funding and new staffing.
- Understand the need for adaptation policies that are effective and flexible enough for circumstances that may not yet be fully predictable.

- Ensure that climate change adaptation strategies are coordinated with the California Air Resources Board's AB 32 Scoping Plan process when appropriate, as well as with other local, state, national and international efforts to reduce GHG emissions.

The 2009 CAS takes into account the long-term, complex, and uncertain nature of climate change and establishes a proactive foundation for an ongoing adaptation process. Rather than address the detailed impacts, vulnerabilities, and adaptation needs of every sector, those determined to be at greatest risk are prioritized. In July 2014, the California Resources Agency published an update to the 2009 CAS, the Safeguarding California Plan: Reducing Climate Risk ("Safeguarding California Plan"), incorporating new information on climate vulnerabilities and management approaches. The Safeguarding California Plan is built on the most up-to-date science and sector-specific analyses of California climate risks and management strategies. The Safeguarding California Plan is not meant to replace the 2009 CAS, but to add new recommendations and replace portions of the prior document where new information allows for updating and revision. The Safeguarding California Plan is designed as policy guidance for state decision makers and identifies climate adaptation strategies and recommendations across nine sectors in California, including: agriculture; biodiversity and habitat; emergency management; energy; forestry; land use and community development; ocean and coastal ecosystems and resources; transportation; and water. As called for in Governor Brown's April 2015 Executive Order (B-30-15), ten implementation plans are presented in the Natural Resource Agency's Safeguarding California: Implementation Action Plans document (March 2016). Safeguarding California: Implementation Action Plans represents a master blueprint for executing actions recommended in the Safeguarding California Plan.

E. Existing Statewide Greenhouse Gas Emissions

The California statewide GHG inventory is a critical piece, in addition to data from various AB 32 programs, in demonstrating the state's progress in achieving the statewide GHG targets established by AB 32 (reduce emissions to the 1990 levels by 2020) and SB 32 (reduce emissions to at least 40 percent below the 1990 levels by 2030). The 2018 edition of the GHG inventory includes the emissions of the seven GHGs identified in AB 32 for the years 2000 to 2016 and uses an inventory scope and framework consistent with international and national GHG inventory practices.

In 2016, California's annual statewide GHG emission inventory was estimated at 429.4 $MMTCO_2e$. A table summary of the emissions reported by sector is provided below in Table 4. California's GHG emissions have followed a declining trend since 2007. In 2016, emissions from routine emitting activities statewide were 429 million metric tons of CO_2 equivalent ($MMTCO_2e$), or 12 $MMTCO_2e$ lower than 2015 levels, representing an overall decrease of 13 percent since peak levels in 2004 and 2 $MMTCO_2e$ below the 1990 level and the state's 2020 GHG target. During the 2000 to 2016 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 tonnes per person to 10.8 tonnes per person in 2016, a 23 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 38 percent decline since the 2001 peak, while the state's GDP has grown 41 percent during this period. In 2016, GDP grew 3 percent while the emissions per GDP declined by 6 percent compared to 2015.

Table 4
California's 2016 Annual Statewide GHG Emissions by Sector

Sector	Emissions by Economic Sector
Transportation	41%
Industrial	23%
Electricity Generation (In State)	10%
Electricity Generation (Imports)	6%
Agriculture	8%
Residential	7%
Commercial	5%
Not Specified	<1%
Total Emissions:	**100%** **429.4 MMTCO_2e**
Source: CARB, California Greenhouse Gas Emission Inventory - 2018 Edition.	

F. Regulatory Framework

1. Federal Regulations

a. United States Environmental Protection Agency (U.S. EPA)

In the past, the U.S. EPA has not regulated GHGs because it asserted that the Clean Air Act (CAA) did not authorize it to issue mandatory regulations to address global climate change. However, in 2007 the U.S. Supreme Court held that the U.S. EPA must consider regulation of motor-vehicle GHG emissions. The Court ruled that GHGs fit within the CAA's definition of a pollutant and that the U.S. EPA did not have a valid rationale for not regulating GHGs. In December 2009, the U.S. EPA issued an endangerment finding for GHGs under the CAA. This is the first step in regulating GHGs under the provisions of the CAA.

In December 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. The purpose of the EISA is "to move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the Federal Government, and other purposes." The EISA provided regulations on fuel economy standards for passenger cars and medium-duty and heavy-duty commercial vehicles, renewable fuel standards, appliances and lighting energy efficiency, and building energy efficiency, among others.

In addition, on September 15, 2009, the National Highway Traffic Safety Administration and U.S. EPA announced a proposed joint rule that would explicitly tie fuel economy to GHG emissions reductions requirements. The current Corporate Average Fuel Economy ("CAFE") Standards cover automobiles for model years 2017 through 2021, and require passenger cars and light trucks to meet a combined, per–mile, CO_2 emissions level. The U.S. Department of Transportation and EPA are proposing the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule which would amend existing CAFE and tailpipe CO_2

emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026.

2. State Regulations

a. California Global Warming Solutions Act (AB 32)

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires the California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a statewide GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

b. Executive Order S-3-05

On June 1, 2005, California Governor Arnold Schwarzenegger issued Executive Order S-3-05. Therein, the following greenhouse gas emission reductions targets are hereby established for 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.

c. Sustainable Communities and Climate Protection Act (SB 375)

California's Sustainable Communities and Climate Protection Act, also referred to as Senate Bill 375 (SB 375) became effective January 1, 2009. The goal of SB 375 is to help achieve AB 32's GHG emissions reduction goals by aligning the planning processes for regional transportation, housing, and land use. SB 375 requires CARB to develop regional reduction targets for GHGs, and prompts the creation of regional plans to reduce emissions from vehicle use throughout the state. California's 18 Metropolitan Planning Organizations (MPOs) have been tasked with creating "Sustainable Community Strategies" (SCS) in an effort to reduce the region's vehicle miles traveled (VMT) in order to help meet AB 32 targets through integrated transportation, land use, housing and environmental planning. Pursuant to SB 375, CARB set per-capita GHG emissions reduction targets from passenger vehicles for each of the State's 18 MPOs. For the SCAG region, the targets are set at eight percent below 2005 per capita emissions levels by 2020 and 13 percent below 2005 per capita emissions levels by 2035.

d. Executive Order B-30-15

On April 29, 2015, California Governor Edmund B. Brown Jr. issued Executive Order B-30-15. Therein, Governor Brown:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030;
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets; and
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

e. Senate Bill 32 and Assembly Bill 197

In summer 2016 the Legislature passed, and the Governor signed, Senate Bill 32 (SB 32) (Pavley, Chapter 249, Statutes of 2016) and Assembly Bill 197 (AB 197) (Garcia, Chapter 250, Statutes of 2016). SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown's April 2015 Executive Order B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an Intergovernmental Panel on Climate Change (IPCC) analysis of the emissions trajectory that would stabilize atmospheric GHG concentrations at 450 parts per million carbon dioxide equivalent (CO_2e) and reduce the likelihood of catastrophic impacts from climate change. The companion bill to SB 32, AB 197, provides additional direction to CARB on the following areas related to the adoption of strategies to reduce GHG emissions.

f. Scoping Plan

Emission reduction measures that could not be initiated in the 2007-2012 timeframe were considered in the Scoping Plan, which was published by CARB in December 2008. The Scoping Plan is defined by AB 32 as "achieving the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020." Scoping Plan measures include direct emission reductions, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and non-monetary incentives for sources for categories. By January 1, 2014 and every five years thereafter, CARB will update its Scoping Plan.

The Climate Change Scoping Plan calls for a "coordinated set of solutions" to address all major categories of GHG emissions. Transportation emissions will be addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard, and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations will be encouraged and, sometimes, required to use energy more efficiently. Utility energy supplies will change to include more renewable energy sources through implementation of the Renewables Portfolio Standard. Additionally, the Climate Change Scoping Plan emphasizes opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished through "improving energy efficiency by 25 percent."

In December 2017, CARB adopted "California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target" (2017 Scoping Plan) that describes the actions the State will take to achieve the SB 32 climate goal of reducing GHG emissions at least 40 percent below 1990 levels by 2030. The 2017 Scoping Plan includes input from a range of State agencies and is the result of a two-year development process including extensive public and stakeholder outreach designed to ensure that California's climate and air quality efforts continue to improve public health and drive development of a more sustainable economy. It outlines an approach that cuts across economic sectors to combine GHG reductions with reductions of smog-causing pollutants, while also safeguarding public health and economic goals. The Plan reflects the direction from the Legislature on the Cap-and-Trade Program, as described in AB 398, the need to extend key existing emissions reductions programs, and acknowledges the parallel actions required under AB 617 to strengthen monitoring and reduce air pollution at the community level.

The actions identified in the 2017 Scoping Plan would reduce overall GHG emissions in California, and deliver strong policy signals that will continue to drive investment and certainty in a low carbon economy. The proposed plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The 2017 Scoping Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197. The 2017 Scoping Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade Program, which constrains and reduces emissions at covered sources. Based on the emissions reductions directed by SB 32, the annual 2030 statewide target emissions level for California is 260 $MMTCO_2e$. California has made progress toward achieving the 2020 statewide GHG target while also reducing criteria pollutants and toxic air contaminants and supporting economic growth. On July 2018, CARB recently announced that greenhouse gas pollution in California fell below 1990 levels, therefore achieving its 2020 greenhouse gas emissions goal set by AB 32.

g. SB 97 and CEQA Guidelines

In August 2007, the Legislature adopted Senate Bill 97 (SB 97), requiring the Office of Planning and Research (OPR) to prepare and transmit new CEQA guidelines for the mitigation of GHG emissions or the effects of GHG emissions to the California Natural Resources Agency. OPR submitted its proposed guidelines to the Secretary for Natural Resources on April 13, 2009; and the CEQA Guidelines amendments were adopted on December 30, 2009 and became effective on March 18, 2010.

The CEQA Guidelines amendments do not specify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, the amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but rely on the lead agencies in making their own significance determinations based upon substantial evidence. The CEQA Guidelines amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

The CEQA Guidelines amendments require a lead agency to make a good-faith effort, based on the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. The CEQA Guideline amendments give discretion to the lead agency whether to: (1) use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use; and/or (2) rely on a qualitative analysis or performance-based standards. Further, the CEQA Guideline amendments identify three factors that should be considered in the evaluation of the significance of GHG emissions:

1. The extent to which a project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The administrative record of the promulgation of the CEQA Guidelines amendments also clarifies "that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of California Environmental Quality Act's requirements for cumulative impact analysis."

The California Natural Resources Agency is required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to AB 32.

h. Title 24 Energy Efficiency Standards

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, located at Title 24, Part 6 of the California Code of Regulations and commonly referred to as "Title 24," were 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 efficiency technologies and methods.

California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2016 Standards went into effect on January 1, 2017, and improve upon the 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The CEC adopted the 2016 changes to the Building Energy Efficiency Standards to respond to the mandates of AB 32 and to pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.

i. California Green Building Standards

The California Green Building Standards Code, which is Part 11 of the California Code of Regulations, is commonly referred to as the CALGreen Code. The first edition of the CALGreen Code was released in 2008 and contained only voluntary standards. The 2016 CALGreen Code was updated in 2016 and became effective on January 1, 2017 and applies to non-residential and residential developments. The

CALGreen Code contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation and more. The CALGreen Code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The CALGreen Code also requires building commissioning which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems are functioning at their maximum efficiency.

3. Regional Regulations

a. Southern California Association of Governments (SCAG)

The Southern California Association of Governments (SCAG) is a regional planning agency and forum for regional issues relating to transportation, the economy and community development, and the environment. On April 7, 2016, SCAG adopted the 2016 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life (2016 RTP/SCS). Within the RTP, the SCS demonstrates the region's ability to attain and exceed the GHG emission-reduction targets set forth by CARB. The SCS sets forth a regional plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as evidenced by several Compass Blueprint Demonstration Projects and various county transportation improvements. The SCS focuses the majority of new housing and job growth in High-Quality Transit Areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network that emphasizes system preservation, active transportation, and transportation demand management measures. By analyzing the performance of land use changes and transportation strategies related to GHG emissions reductions, the 2016 RTP/SCS concluded that GHG emissions per capita relative to 2005 emissions would be reduced by 8% in 2020, 18% in 2035, and 21% in 2040 in the SCAG region, which would exceed CARB's required reduction targets. These future GHG goals and conditions would be met in 2040 if investments and strategies detailed in the 2016 RTP/SCS are fully realized.

b. SCAQMD

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. Within its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 metric tons per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). Although SCAQMD formed a GHG

Significance Threshold Working Group to further evaluate potential GHG significance thresholds, this group has not met since 2010.

4. Local Regulations

a. City of Ontario Policy Plan

The City of Ontario's Policy Plan serves as the City's General Plan, which is mandated by state law. The Policy Plan's Environmental Resources Element (Chapter 4, Air Quality) addresses greenhouse gas emissions and includes the following policies related to reducing GHGs.

Policy ER4-1 *Land Use.* We reduce GHG and other local pollutant emissions through compact, mixed use, and transit-oriented development and development that improves the regional jobs-housing balance.

Policy ER4-3 *Greenhouse Gases (GHG) Emissions Reductions.* We will reduce GHG emissions in accordance with regional, state and federal regulations.

Policy ER4-8 *Tree Planting.* We protect healthy trees within the City and plant new trees to increase carbon sequestration and help the regional/local air quality.

b. City of Ontario Community Climate Action Plan (CCAP)

On December 16, 2014, the City of Ontario City Council approved the Community Climate Action Plan (CCAP). The City of Ontario committed to the development of a CCAP with the GHG emissions reduction goal of 30 percent below projected 2020 levels. The primary purpose of the CCAP is to design a feasible strategy to reduce GHG emissions generated from community activities that is consistent with statewide Scoping Plan GHG reduction efforts. Community activities are defined as those activities occurring in association with the land uses and activities within the City's jurisdictional boundary, generally from sources of emissions that the City's community can influence or control. The CCAP demonstrates that the City is doing its fair share to assist the state of California in reaching its GHG reduction goals by 2020 as set forth in State regulations AB 32. The CCAP includes the following:

- Basic information about the science of climate change and a summary of state and federal level regulatory activity related to GHG emissions.
- An inventory of all GHG emissions that result from community activities in the City in 2008 (the baseline year).
- A projection of the GHG emissions that would result form community activities in the City in 2020 if the City or the state took no additional action to reduce emissions (the business as usual [BAU] forecast).
- A list of measures/programs that will likely be taken by the state and the City that will result in lower GHG emissions in 2020 that were projected.
- A prioritization of measures/programs that the City can pursue in order to reduce its emissions such that the CAP can be used as a decision-making tool.

- Recommendations for implementation, next steps, and future updates to the CCAP.

3. ENVIRONMENTAL IMPACTS

A. Thresholds of Significance

1. State CEQA Guidelines Appendix G

In accordance with the State CEQA Guidelines Appendix G (Appendix G), the Proposed Project would have a significant impact related to GHG emissions if it would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Section 15064.4 of the CEQA Guidelines was adopted to assist lead agencies in determining the significance of the impacts of GHGs. This section recommends that lead agencies quantify the GHG emissions of projects and consider several other factors that may be used in the determination of significance of project-related GHG emissions, including: the extent to which the project may increase or reduce GHG emissions; whether the project exceeds an applicable significance threshold; and the extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs. Section 15064.4 does not establish a threshold of significance. Lead agencies are given discretion to utilize significance thresholds for their respective jurisdictions in which a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, such as CAPCOA, so long as any threshold chosen is supported by substantial evidence [see CEQA Guidelines Section 15064.7(c)]. The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impact analysis, as required by CEQA Guidelines Section 15130(f)).

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significance for GHG emissions if a project complies with regulatory programs to reduce GHG emissions.

2. City of Ontario Community Climate Action Plan (CCAP)

In the absence of any adopted numeric threshold, the significance of the Proposed Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the

Proposed Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. For the Proposed Project, as a land use development project, the most directly applicable adopted regulatory plan to reduce GHG emissions is the City's Community Climate Action Plan (CCAP), which is designed to achieve GHG reductions from the land use and transportation sectors as required by SB 375 and the State's long-term climate goals.

The Proposed Project's greenhouse gas emissions would be considered less than significant if the Project's GHG emissions: (a) are below the SCAQMD's proposed screening threshold of significance for commercial projects of 3,000 $MTCO_2e$ per year; and (b) there is substantial evidence to support the finding that the Proposed Project is substantially consistent with the following applicable regulatory plans and policies to reduce GHG emissions: the SB 32, the Climate Change Scoping Plan, SCAG's 2016 RTP/SCS, and the City's CCAP.

With the application of the required GHG performance standards, the City determined that development projects that emit less than 3,000 $MTCO_2e$ of GHGs per year are considered to have a less than significant individual and cumulative impact for GHG emissions. Projects that exceed the 3,000 $MTCO_2e$ GHG emissions per year have the option of: 1) using the Screening Tables in Appendix B of the CCAP as a tool to calculate GHG reduction measures that equate to 100 or greater points; or 2) to not use the Screening Tables and require the quantification of the project-specific GHG emissions and achieve the equivalent level of GHG emissions efficiency as a 100-point project or approximately 25 percent below 2020 unmitigated conditions. Projects that exceed the 3,000 $MTCO_2e$ of GHG emissions per year and are capable of achieving one of the two aforementioned mitigation options would be determined to have a less than significant individual and cumulative impact for GHG emissions.

B. Project Impacts

Threshold a)	**Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

1. Construction Emissions

Construction of the Proposed Project would emit GHG emissions through the combustion of fossil fuels by heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the Project Site. These impacts would vary day to day over the approximate 10-month duration of construction activities.

Emissions of GHGs were calculated using CalEEMod (*Version 2016.3.2*) for the year of construction of the Proposed Project and the results of this analysis are presented in Table 5, Proposed Project Construction-Related Greenhouse Gas Emissions. As shown in Table 5, the total GHG emissions from construction activities related to the Proposed Project would be 587.17 metric tons.

Table 5
Proposed Project Construction-Related Greenhouse Gas Emissions

Year	CO_2e Emissions (Metric Tons per Year)
2020	587.17
Total Construction GHG Emissions:	**587.17**

Source: CalEEMod Version 2016.3.2; Calculation data and results are provided in Appendix A to this report.

2. Operational Emissions

a. Existing Baseline GHG Emissions

The Project Site is currently developed with an approximate 13.31-acre lot that is vacant and undeveloped. Therefore, it is assumed that no existing greenhouse gas emissions are currently being emitted from the Project Site.

b. Proposed Project GHG Emissions

The Proposed Project would generate greenhouse gas emissions from the usage of on-road mobile vehicles, electricity, natural gas, water, landscape equipment, and generation of solid waste and wastewater. The Proposed Project's emissions were calculated using CalEEMod and based on the assumptions that the Proposed Project is constructed in compliance with the energy conservation measures mandated by the California Green Building Code, which reflects in part, the City's commitment to reducing waste disposal, conserving energy, conserving water, and promoting "green" building practices, which are consistent with the goals of AB 32 with respect to how local municipalities can assist the State in achieving its GHG reduction goals. Because the Proposed Project is a unique entertainment land use and does not fall within the typical definition of a golf course, various assumptions were made to appropriately generate a conservative calculation of the Proposed Project's GHG emissions. These assumptions are described in greater detail below under the applicable emission sources. As shown in Table 6, below, the GHG emissions generated by the Proposed Project would result in a net increase of 2,765.10 CO_2e MTY.

(i) Direct Proposed Project-Related Sources of GHGs

- Construction Emissions: Construction GHG emissions were estimated and amortized over the lifetime of the Proposed Project (approximately 30 years) and added to the total operational emissions, as recommended by the SCAQMD. The Proposed Project's construction activities would result in approximately 19.57 $MTCO_2e$/year.
- Area Source: GHGs from area sources are emitted from architectural coatings and landscaping equipment. The Proposed Project would result in approximately 0.02 $MTCO_2e$/year from area sources.

- Mobile Sources: CalEEMod uses the trip generation estimated from the Proposed Project's Traffic Study, prepared by Gibson Transportation Consulting, Inc., to calculate the mobile source emissions. It is estimated that the Proposed Project would result in approximately 1,855 trips per weekday (1,826 trips from the main Topgolf facility and 30 net trips from the mini golf course) and 3,172 trips on Saturdays (3,121 trips from the main Topgolf facility and 50 trips from the mini golf course). Additionally, although the proposed use is golf-related, the Topgolf facility is an entertainment style use that generates trip types and lengths that are more closely aligned with a movie theater than a regional golf course. Thus, the trip types (i.e., customer, worker and vendor trips) and associated trip lengths were based on a movie theater land use. The Proposed Project's mobile source emissions would be approximately 1,392.92 $MTCO_2e$/year.

Table 6
Proposed Project Operational Greenhouse Gas Emissions

Emissions Source	Estimated Project Generated CO_2e Emissions (Metric Tons per Year)
	Proposed Project
Direct Emissions	
Construction [a]	19.57
Area	0.02
Mobile	1,392.92
Indirect Emissions	
Energy	791.82
Waste	4.39
Water	556.38
Proposed Project Total:	**2,765.10**
GHG Emissions Exceed the 3,000 $MTCO_2e$ / yr Threshold?	***No***

Notes:
[a] *The total construction GHG emissions were amortized over 30 years and added to the operation of the Project.*
Source: CalEEMod Version 2016.3.2. Calculation data and results provided in Appendix A.

(ii) Indirect Proposed Project-Related Sources of GHGs

- Energy Consumption: GHG emissions were estimated from energy consumption, such as the production of electricity and natural gas. Because the Topgolf facility contains food and beverage services that are more intensive than a typical golf course concessions, approximately 18,400 square feet of the total 67,521 square foot facility was conservatively based on a quality restaurant land use to account for the building areas occupied by food/beverage stations, service bar, kitchen areas, banquet space, and all outdoor patio/terrace areas. Energy use for the remainder of the facility was based on a movie theater use to account for lighting, heating, ventilation and air conditioning (HVAC) requirements of high occupancy areas. Additionally, as required by the City, the Proposed Project would exceed Title 24 energy standards by 5 percent. Thus, the Proposed Project's operational energy emissions reflect the mitigated scenario to

account for this project design feature. The Proposed Project would result in 791.82 $MTCO_2e$/year from energy consumption.

- Solid Waste: GHGs, specifically methane, is emitted into the atmosphere as solid waste decomposes in landfills. As required by the City, the Proposed Project would be required to institute an on-site recycling program to segregate food wastes and recyclable materials. This requirement, coupled with source reduction and recycling instituted by the City's commercial waste hauling company is estimated to reduce landfill waste by 50 percent. Thus, the Proposed Project's waste emissions reflect the mitigated scenario to account for this project design feature. The Proposed Project would result in 4.39 $MTCO_2e$/year from solid waste disposal.

- Water Demand: Energy is needed to pump and distribute water to developments. As such, the plumbing and landscaping for the Proposed Project would require energy to operate and result in GHG emissions. As discussed above, for purposes of capturing the energy and water use associated with the Proposed Project's food/beverage services, approximately 18,400 square feet of the 67,521 square foot Topgolf facility was conservatively calculated as a restaurant use. In addition, outdoor water use was based on an approximate 80 percent reduction in outdoor water use as compared to a typical golf course, as the miniature golf and the driving range component would be improved with artificial turf in lieu of natural grass. Thus, the Proposed Project's water use-related GHG emissions reflect the mitigated scenario to account for these features. Based on these assumptions, the Proposed Project would result in 556.38 $MTCO_2e$/year from water demand.

c. City CCAP Energy Efficiency Measures

Since the Proposed Project's estimated GHG emissions are below the 3,000 $MTCO_2e$/year screening threshold, the Proposed Project does not need to use the Screening Tables or alternative GHG mitigation analysis. However, the Proposed Project would be required to incorporate the following energy efficiency measures:

- Energy efficiency of at least five percent greater than Title 24 requirements or other equivalent levels of GHG reductions; and
- Water conservation measures that matches the California Green Building Code or equivalent levels of GHG reductions.

3. Conclusion to Threshold a

As demonstrated above, the Proposed Project would not exceed the City's commercial screening threshold of 3,000 $MTCO_2e$/year. The Proposed Project's greenhouse gas emissions would not result in a significant direct or indirect impact on the environment, and the Proposed Project would have a less than significant impact with respect to greenhouse gas emissions.

Threshold b)	**Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

1. Consistency with Applicable Plans, Policies, or Regulations

a. Consistency with 2017 Scoping Plan

While the Scoping Plan provided several broad goals and policies aimed at reducing greenhouse gases on a statewide level, some of the policies are applicable or interrelated to the development of specific land use projects at the local level. Provided in Table 7 below, is a consistency analysis of the Scoping Plan's policies that are applicable or indirectly applicable to the Proposed Project.

Table 7
Consistency Analysis with Applicable 2017 Scoping Plan Measures

Measures	Consistency Analysis
Implement SB 350 by 2030: • Increase the Renewables Portfolio Standard to 50 percent of retail sales by 2030 and ensure grid reliability.	**Consistent**. This measure is not directly applicable to development projects, but the Proposed Project would use energy from Southern California Edison, which has committed to diversify its portfolio of energy sources by increasing energy from wind and solar sources.
• Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.	**Consistent**. Although this measure is directed towards policymakers, the Proposed Project would be designed and constructed to implement the energy efficiency measures in the City's CCAP for new commercial developments and would include several measures designed to reduce energy consumption.
• Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in IRPs to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly- owned utilities meet GHG emissions reductions planning targets through a combination of measures as described in IRPs.	**Consistent.** The Proposed Project would be designed and constructed to implement the energy efficiency measures in the City's CCAP, where applicable by including several measures designed to reduce energy consumption. The Proposed Project includes energy efficient field lighting and fixtures that meet Title 24 Standards throughout the Project Site and would be a modern development with energy efficient boilers, heaters, and air conditioning systems.
Implement Mobile Source Strategy (Cleaner Technology and Fuels): • Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."	**Not Applicable.** This measure is directed towards policymakers and is not applicable to an entertainment land use such as the Proposed Project. The Proposed Project is in close proximity to residential neighborhoods and transit opportunities along Inland Empire Boulevard and Archibald Avenue. This would allow future employees the opportunities to live and work in the City and reduce vehicle miles traveled. Additionally, the Proposed Project would provide adequate bicycle parking near building entrances to promote cyclist safety, security,

	and convenience. The Project Site is also served by transit lines (OmniTrans lines 61 and 80), which would serve to reduce vehicle trips. Thus, Proposed Project's location to transit would reduce vehicles-per-miles traveled, promote alternatives to driving, and aim to reduce GHG emissions.
By 2019, adjust performance measures used to select and design transportation facilities. • Harmonize project performance with emissions reductions, and increase competitiveness of transit and active transportation modes (e.g. via guideline documents, funding programs, project selection, etc.).	**Not Applicable.** Although this is directed towards CARB and Caltrans, the Proposed Project would be designed to promote and support pedestrian activity on-site and in the Project Site area. The Project Site is within proximity to residential neighborhoods and transit opportunities along Inland Empire Boulevard and Archibald Avenue. The nearest bus stop to the Project Site is approximately 0.5 miles (walking distance) south from the Project Site and run by the OmniTrans (San Bernardino County Public Transit) inter-city transit bus line.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	**Not Applicable.** Although this measure is directed towards policymakers, the Proposed Project would comply with AB 939, which sets a statewide policy that not less than 50 percent of solid waste generated be source reduced, recycled, or composted. Additionally, the Proposed Project would be required to have a recycling program and recycling collection. During construction, the Proposed Project shall recycle and reuse construction and demolition waste per City Solid Waste procedures.
Measures not applicable to this Project are not listed. *Source: California's 2017 Climate Change Scoping Plan, November 2017, pg. 103.* *Parker Environmental Consultants, 2018.*	

b. Consistency with 2016 RTP/SCS

By analyzing the performance of land use changes and transportation strategies related to GHG emissions reductions, the 2016-2040 RTP/SCS concluded that GHG emissions per capita relative to 2005 emissions would be reduced by 8% in 2020, 18% in 2035, and 21% in 2040 in the SCAG region, which would exceed CARB's required reduction targets. These future GHG goals and conditions would be met in 2040 if investments and strategies detailed in the 2016 RTP/SCS are fully realized. Ideally, with the provision of better transit options, commuters will choose that option over driving alone in their automobiles, further reducing vehicle miles traveled and regional greenhouse gas emissions, which would be consistent with the goals of SCAG's 2016-2040 RTP/SCS of reducing GHG emissions per capita by 8% in 2020, 18% in 2035, and 21% in 2040.

The Proposed Project would provide future patrons and employees with convenient access to public transit and opportunities for walking, biking, and carpooling, which would facilitate a reduction in vehicle miles traveled and related vehicular GHG emissions. These and other measures would further promote a reduction in vehicle miles traveled and subsequent reduction in GHG emissions, which would be consistent with the goals of SCAG's 2016 RTP/SCS. Table 8 below provides a consistency analysis with each of the goals of the 2016-2040 RTP/SCS.

Table 8
Consistency Analysis with the
2016-2040 Regional Transportation Plan / Sustainable Community Strategy

Goals and Policies	Consistency Assessment
2016-2040 RTP/SCS Goal 1 Align the plan investments and policies with improving regional economic development and competitiveness.	**Not Applicable.** This Goal is directed towards SCAG and City of Ontario and not does apply to the Proposed Project.
2016-2040 RTP/SCS Goal 2 Maximize mobility and accessibility for all people and goods in the region.	**Consistent.** The Proposed Project is located on an approximately 13.3-acre parcel that is currently fenced with no direct vehicular access provided through the Project Site. As part of the Proposed Project, the Project Site would provide vehicle and bicycle parking, which would support mobility and accessibility to the Project Site. As such, the Proposed Project would support this goal.
2016-2040 RTP/SCS Goal 3 Ensure travel safety and reliability for all people and goods in the region.	**Consistent.** The Proposed Project would comply with the City and Caltrans standards for Project Site access. Further, the Proposed Project would work with the Department of Building and Safety and the Fire Department to ensure that all access roads, driveways and parking areas would not create a design hazard to local roadways. Roadways for motorists must follow safety standards established for the local and regional plans. As such, the Proposed Project would support this goal.
2016-2040 RTP/SCS Goal 4 Preserve and ensure a sustainable regional transportation system.	**Consistent.** As discussed in the Proposed Project's Traffic Study, the Proposed Project would result in a less than significant impact with mitigation to the surrounding roadways, intersections, and CMP monitoring locations (including arterials and freeways) and public transit. As such, the Proposed Project would not conflict with the regional transportation system.
2016-2040 RTP/SCS Goal 5 Maximize the productivity of our transportation system.	**Not Applicable.** This goal is directed towards the SCAG region to maximize the productivity of the transportation system.
2016-2040 RTP/SCS Goal 6 Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).	**Consistent.** As discussed in the Air Quality Modeling Analysis, prepared (dated February 2019), the Proposed Project would result in a less than significant impact regarding air quality during construction and operation. As such, the Proposed Project would be below the regional air quality thresholds and protect the health of the environment and the health of nearby residents. The Proposed Project would provide bicycle parking spaces to encourage active forms of transportation. The Proposed Project is located near an inter-city transit line along Inland Empire Boulevard, which would further support pedestrian activity. As such, the Proposed Project would support active transportation and improve air quality.
2016-2040 RTP/SCS Goal 7 Actively encourage and create incentives for energy efficiency, where possible.	**Consistent.** The Proposed Project would be required to incorporate the efficiency standards used for small commercial projects in the City's CCAP that would improve energy efficiency within the City.
2016-2040 RTP/SCS Goal 8 Encourage land use and growth patterns that facilitate transit and active transportation.	**Consistent.** The Proposed Project is currently undeveloped. The Proposed Project would open the Project Site to active transportation. The Proposed Project would promote walking and bicycling as required by the City's CCAP by including bicycle parking spaces on the facility entrances.
2016-2040 RTP/SCS Goal 9 Maximize the security of the regional transportation system	**Not Applicable.** This goal is directed towards SCAG to ensure the safety and security of the regional transportation system. No further

Table 8
Consistency Analysis with the
2016-2040 Regional Transportation Plan / Sustainable Community Strategy

Goals and Policies	Consistency Assessment
through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	discussion is required.
Source: Southern California Association of Governments, 2016-2040 RTP/SCS, April 2016.	

c. Consistency with the City of Ontario Policy Plan

The City's Policy Plan Environmental Resource Element includes goals and policies related to reducing GHGs. Table 9 below, provides a consistency analysis with each of the policies of the Policy Plan Environmental Resource Element as they related to greenhouse gas emissions.

Table 9
Consistency Analysis with the Applicable Policies of the City of Ontario Policy Plan

Goals and Policies	Consistency Assessment
Environmental Resources Element	
Policy ER4-1: *Land Use.* We reduce GHG and other local pollutant emissions through compact, mixed use, and transit-oriented development and development that improves the regional jobs-housing balance.	**Consistent.** The Proposed Project would replace an underutilized site with a commercial land use near a various mix of land uses, including residential, commercial, and industrial uses. The Proposed Project would provide nearby residents with job opportunities to promote residents to live and work within the City of Ontario and reduce vehicle miles traveled.
Policy ER4-3: *Greenhouse Gases (GHG) Emissions Reductions.* We will reduce GHG emissions in accordance with regional, state and federal regulations.	**Consistent.** As analyzed above, the Proposed Project would be below the screening threshold of 3,000 $MTCO^2$/year of greenhouse gas emissions. Additionally, the Proposed Project would adhere to the applicable energy efficiency measures detailed in the City's CCAP for small development projects, which aim to improve GHG reducing impacts in new developments within the City.
Policy ER4-8: *Tree Planting.* We protect healthy trees within the City and plant new trees to increase carbon sequestration and help the regional/local air quality.	**Consistent.** The Proposed Project would provide trees and landscaping in the outdoor patio areas. Trees would also be located throughout the surface parking areas and in landscaped setbacks fronting Archibald Avenue and 4th Street. Therefore, the Proposed Project would help to increase carbon sequestration.
Source: City of Ontario Policy Plan, Environmental Resources Element, Chapter 4, Air Quality, website: http://www.ontarioplan.org/policy-plan/environmental-resources-element/er4-air-quality/, accessed February 2019.	

d. Consistency with City's Community Climate Action Plan

The City's CCAP states that a project that emits less than 3,000 $MTCO_2e$/year, combined with the energy efficiency measures listed below, would be defined as a small project and would be considered to have a less than significant GHG emissions impact. Since the Proposed Project's estimated GHG emissions are below the 3,000 $MTCO_2e$/year screening threshold, the Proposed Project does not need to use the

Screening Tables or alternative GHG mitigation analysis. The Proposed Project would be required to incorporate the following energy efficiency measures:

- Energy efficiency of at least five percent greater than Title 24 requirements or other equivalent levels of GHG reductions; and
- Water conservation measures that matches the California Green Building Code or equivalent levels of GHG reductions.

2. Conclusion to Threshold b

As demonstrated above, the Proposed Project's design features and performance standards would be consistent with local and statewide goals and policies aimed at reducing the generation of GHGs, including SB 32, SB 375, CARB's 2017 Scoping Plan, the City of Ontario Policy Plan, and the City of Ontario Community Climate Action Plan. Therefore, the Proposed Project's generation of GHG emissions would not make a project-specific or cumulatively considerable contribution to conflicting with an applicable plan, policy or regulation for the purposes of reducing the emissions of greenhouse gases, and the Proposed Project's impacts would be less than significant.

C. Mitigation Measures

The Proposed Project's impacts would be less than significant with adherence to applicable energy efficiency measures. Therefore, no mitigation measures are warranted.

D. Cumulative Impacts

The GHG emissions from a commercial project, such as the Proposed Project, is relatively very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change. Rather, it is the increased accumulation of GHG emissions from more than one project and many sources in the atmosphere that may result in global climate change, which can cause the adverse environmental effects previously discussed. Accordingly, the threshold of significance for GHG emissions determines whether a project's contribution to global climate change is "cumulatively considerable." Many regulatory agencies, including the SCAQMD, concur that GHG and climate change should be evaluated as a potentially significant cumulative impact, rather than a project's direct impact. Accordingly, the GHG analysis presented above analyzes whether the Proposed Project's impact would be cumulatively considerable using a plan-based approach (and quantitative and qualitative analysis) to determine the Proposed Project's contributing effect on climate change. The Proposed Project would not exceed the 3,000 $MTCO_2e$/year screening threshold and would be consistent with all applicable local ordinances, regulations, and policies that have been adopted in furtherance of the state and City's goals of reducing GHG emissions. Thus, the Proposed Project would not make a cumulatively considerable contribution to GHG emissions, and impacts would be less than significant.

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C. PREPARERS

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APPENDIX A

Greenhouse Gas CalEEMod Worksheets
Topgolf Ontario Project
March 2019.

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Topgolf Ontario Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	524.00	Space	6.00	0.00	0
Golf Course	18.00	Hole	0.50	21,780.00	0
Quality Restaurant	18.40	1000sqft	0.30	18,400.00	0
User Defined Recreational	102.00	User Defined Unit	6.50	49,121.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - User defined retail is 67,521 sf Topgolf Facility ith 102 hitting bays. Approx. 18,400 sf of total floor area was identified as restaurant space to account for water and energy use associated with food, beverage, kitchen, banquet and all outdoor patio/terrace space within the facility.

Grading - Approximately 11,000 cy soil export on 13.3-acre site.

Trips and VMT - Vendor, paving, and architectural coatings increased as conservative estimate.

Vehicle Trips - Trip rates per Gibson Transportation Consulting traffic data. Trip rates modified to reflect total ADT of 1,855 per Traffic Study Table 7, Trip Generation Estimates. Trip types for calculating VMT were modified to be comparable to a movie theater land use to reflect the unique entertainment use of a Topgolf facility.

Energy Mitigation - City of Ontario requires 5% energy improvement above Title 24 standards.

Water Mitigation - Mini-golf and driving range area to use artificial turf in lieu of grass.

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	44.00
tblConstructionPhase	NumDays	300.00	138.00
tblConstructionPhase	NumDays	30.00	22.00
tblConstructionPhase	NumDays	20.00	11.00
tblEnergyUse	LightingElect	0.00	3.62
tblEnergyUse	NT24E	0.00	5.02
tblEnergyUse	NT24NG	0.00	17.13
tblEnergyUse	T24E	0.00	2.89
tblEnergyUse	T24NG	0.00	16.76
tblGrading	AcresOfGrading	55.00	75.00
tblGrading	MaterialExported	0.00	11,000.00
tblLandUse	LandUseSquareFeet	209,600.00	0.00
tblLandUse	LandUseSquareFeet	0.00	21,780.00
tblLandUse	LandUseSquareFeet	0.00	49,121.00
tblLandUse	LotAcreage	4.72	6.00
tblLandUse	LotAcreage	125.66	0.50

tblLandUse	LotAcreage	0.42	0.30
tblLandUse	LotAcreage	0.00	6.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	VendorTripNumber	15.00	138.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblVehicleTrips	CC_TTP	48.00	79.20
tblVehicleTrips	CC_TTP	0.00	79.20
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	33.00	1.80
tblVehicleTrips	CW_TTP	0.00	1.80
tblVehicleTrips	DV_TP	39.00	18.00
tblVehicleTrips	DV_TP	0.00	18.00
tblVehicleTrips	PB_TP	9.00	44.00
tblVehicleTrips	PB_TP	0.00	44.00
tblVehicleTrips	PR_TP	52.00	38.00
tblVehicleTrips	PR_TP	0.00	38.00
tblVehicleTrips	ST_TR	40.63	2.80
tblVehicleTrips	ST_TR	94.36	0.00
tblVehicleTrips	ST_TR	0.00	30.60
tblVehicleTrips	SU_TR	39.53	2.80
tblVehicleTrips	SU_TR	72.16	0.00
tblVehicleTrips	SU_TR	0.00	30.60
tblVehicleTrips	WD_TR	35.74	1.65
tblVehicleTrips	WD_TR	89.95	0.00
tblVehicleTrips	WD_TR	0.00	17.90

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.7085	3.4035	2.2447	6.4000e-003	0.2139	0.1242	0.3380	0.0708	0.1172	0.1880	0.0000	585.0706	585.0706	0.0838	0.0000	587.1656
Maximum	**0.7085**	**3.4035**	**2.2447**	**6.4000e-003**	**0.2139**	**0.1242**	**0.3380**	**0.0708**	**0.1172**	**0.1880**	**0.0000**	**585.0706**	**585.0706**	**0.0838**	**0.0000**	**587.1656**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.7085	3.4035	2.2447	6.4000e-003	0.1552	0.1242	0.2794	0.0483	0.1172	0.1656	0.0000	585.0702	585.0702	0.0838	0.0000	587.1653
Maximum	**0.7085**	**3.4035**	**2.2447**	**6.4000e-003**	**0.1552**	**0.1242**	**0.2794**	**0.0483**	**0.1172**	**0.1656**	**0.0000**	**585.0702**	**585.0702**	**0.0838**	**0.0000**	**587.1653**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**27.43**	**0.00**	**17.35**	**31.71**	**0.00**	**11.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-6-2020**	**4-5-2020**	1.5915	1.5915
2	**4-6-2020**	**7-5-2020**	1.1542	1.1542
3	**7-6-2020**	**9-30-2020**	0.9608	0.9608
		Highest	1.5915	1.5915

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3649	8.0000e-005	8.5100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0164	0.0164	4.0000e-005	0.0000	0.0175
Energy	0.0361	0.3282	0.2757	1.9700e-003		0.0250	0.0250		0.0250	0.0250	0.0000	816.1384	816.1384	0.0258	0.0105	819.9032
Mobile	0.5545	2.6683	5.1668	0.0151	1.0974	0.0157	1.1131	0.2941	0.0147	0.3088	0.0000	1,390.7787	1,390.7787	0.0856	0.0000	1,392.9196
Waste						0.0000	0.0000		0.0000	0.0000	3.5442	0.0000	3.5442	0.2095	0.0000	8.7807
Water						0.0000	0.0000		0.0000	0.0000	1.5889	551.9060	553.4949	0.1860	8.5700e-003	560.6976
Total	**0.9555**	**2.9966**	**5.4511**	**0.0170**	**1.0974**	**0.0407**	**1.1381**	**0.2941**	**0.0397**	**0.3338**	**5.1331**	**2,758.8395**	**2,763.9726**	**0.5069**	**0.0190**	**2,782.3185**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3649	8.0000e-005	8.5100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0164	0.0164	4.0000e-005	0.0000	0.0175
Energy	0.0355	0.3227	0.2711	1.9400e-003		0.0245	0.0245		0.0245	0.0245	0.0000	788.1732	788.1732	0.0248	0.0102	791.8238
Mobile	0.5545	2.6683	5.1668	0.0151	1.0974	0.0157	1.1131	0.2941	0.0147	0.3088	0.0000	1,390.7787	1,390.7787	0.0856	0.0000	1,392.9196
Waste						0.0000	0.0000		0.0000	0.0000	1.7721	0.0000	1.7721	0.1047	0.0000	4.3903
Water						0.0000	0.0000		0.0000	0.0000	1.3410	548.6646	550.0056	0.1604	7.9400e-003	556.3811
Total	**0.9549**	**2.9911**	**5.4464**	**0.0170**	**1.0974**	**0.0403**	**1.1377**	**0.2941**	**0.0393**	**0.3334**	**3.1132**	**2,727.6329**	**2,730.7461**	**0.3756**	**0.0181**	**2,745.5323**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.06**	**0.18**	**0.09**	**0.18**	**0.00**	**1.03**	**0.04**	**0.00**	**1.06**	**0.13**	**39.35**	**1.13**	**1.20**	**25.91**	**4.88**	**1.32**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/6/2020	2/4/2020	5	22	
2	Building Construction	Building Construction	2/5/2020	8/14/2020	5	138	
3	Paving	Paving	8/15/2020	8/31/2020	5	11	
4	Architectural Coating	Architectural Coating	9/1/2020	10/30/2020	5	44	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 6

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 133,952; Non-Residential Outdoor: 44,651; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Topgolf Ontario Project - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	8.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	5	6.00	78	0.48
Architectural Coating	Forklifts	2	8.00	89	0.20

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	9	23.00	0.00	1,375.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	38.00	138.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	7	8.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1066	0.0000	0.1066	0.0408	0.0000	0.0408	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0536	0.5885	0.3921	7.5000e-004		0.0261	0.0261		0.0242	0.0242	0.0000	65.8469	65.8469	0.0198	0.0000	66.3409
Total	**0.0536**	**0.5885**	**0.3921**	**7.5000e-004**	**0.1066**	**0.0261**	**0.1327**	**0.0408**	**0.0242**	**0.0650**	**0.0000**	**65.8469**	**65.8469**	**0.0198**	**0.0000**	**66.3409**

3.2 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2900e-003	0.1929	0.0385	5.3000e-004	0.0118	6.1000e-004	0.0124	3.2400e-003	5.8000e-004	3.8300e-003	0.0000	51.8815	51.8815	3.5800e-003	0.0000	51.9709
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	8.7000e-004	9.5800e-003	3.0000e-005	2.7800e-003	2.0000e-005	2.8000e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.4988	2.4988	7.0000e-005	0.0000	2.5006
Total	**6.4200e-003**	**0.1938**	**0.0481**	**5.6000e-004**	**0.0146**	**6.3000e-004**	**0.0152**	**3.9800e-003**	**6.0000e-004**	**4.5900e-003**	**0.0000**	**54.3803**	**54.3803**	**3.6500e-003**	**0.0000**	**54.4715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0480	0.0000	0.0480	0.0184	0.0000	0.0184	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0536	0.5885	0.3921	7.5000e-004		0.0261	0.0261		0.0242	0.0242	0.0000	65.8469	65.8469	0.0198	0.0000	66.3408
Total	**0.0536**	**0.5885**	**0.3921**	**7.5000e-004**	**0.0480**	**0.0261**	**0.0741**	**0.0184**	**0.0242**	**0.0425**	**0.0000**	**65.8469**	**65.8469**	**0.0198**	**0.0000**	**66.3408**

3.2 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2900e-003	0.1929	0.0385	5.3000e-004	0.0118	6.1000e-004	0.0124	3.2400e-003	5.8000e-004	3.8300e-003	0.0000	51.8815	51.8815	3.5800e-003	0.0000	51.9709
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1300e-003	8.7000e-004	9.5800e-003	3.0000e-005	2.7800e-003	2.0000e-005	2.8000e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.4988	2.4988	7.0000e-005	0.0000	2.5006
Total	**6.4200e-003**	**0.1938**	**0.0481**	**5.6000e-004**	**0.0146**	**6.3000e-004**	**0.0152**	**3.9800e-003**	**6.0000e-004**	**4.5900e-003**	**0.0000**	**54.3803**	**54.3803**	**3.6500e-003**	**0.0000**	**54.4715**

3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1404	1.2597	1.1024	1.8000e-003		0.0714	0.0714		0.0673	0.0673	0.0000	153.7069	153.7069	0.0363	0.0000	154.6149
Total	**0.1404**	**1.2597**	**1.1024**	**1.8000e-003**		**0.0714**	**0.0714**		**0.0673**	**0.0673**	**0.0000**	**153.7069**	**153.7069**	**0.0363**	**0.0000**	**154.6149**

3.3 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0319	1.0162	0.2517	2.4200e-003	0.0600	4.9800e-003	0.0650	0.0173	4.7700e-003	0.0221	0.0000	234.1954	234.1954	0.0154	0.0000	234.5797
Worker	0.0117	8.9700e-003	0.0993	2.9000e-004	0.0288	2.2000e-004	0.0290	7.6400e-003	2.0000e-004	7.8400e-003	0.0000	25.8966	25.8966	7.4000e-004	0.0000	25.9152
Total	**0.0436**	**1.0251**	**0.3510**	**2.7100e-003**	**0.0888**	**5.2000e-003**	**0.0940**	**0.0250**	**4.9700e-003**	**0.0299**	**0.0000**	**260.0920**	**260.0920**	**0.0161**	**0.0000**	**260.4949**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1404	1.2597	1.1024	1.8000e-003		0.0714	0.0714		0.0673	0.0673	0.0000	153.7067	153.7067	0.0363	0.0000	154.6147
Total	**0.1404**	**1.2597**	**1.1024**	**1.8000e-003**		**0.0714**	**0.0714**		**0.0673**	**0.0673**	**0.0000**	**153.7067**	**153.7067**	**0.0363**	**0.0000**	**154.6147**

3.3 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0319	1.0162	0.2517	2.4200e-003	0.0600	4.9800e-003	0.0650	0.0173	4.7700e-003	0.0221	0.0000	234.1954	234.1954	0.0154	0.0000	234.5797
Worker	0.0117	8.9700e-003	0.0993	2.9000e-004	0.0288	2.2000e-004	0.0290	7.6400e-003	2.0000e-004	7.8400e-003	0.0000	25.8966	25.8966	7.4000e-004	0.0000	25.9152
Total	**0.0436**	**1.0251**	**0.3510**	**2.7100e-003**	**0.0888**	**5.2000e-003**	**0.0940**	**0.0250**	**4.9700e-003**	**0.0299**	**0.0000**	**260.0920**	**260.0920**	**0.0161**	**0.0000**	**260.4949**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.1100e-003	0.0814	0.0840	1.3000e-004		4.3000e-003	4.3000e-003		3.9700e-003	3.9700e-003	0.0000	11.5196	11.5196	3.6100e-003	0.0000	11.6100
Paving	7.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0160**	**0.0814**	**0.0840**	**1.3000e-004**		**4.3000e-003**	**4.3000e-003**		**3.9700e-003**	**3.9700e-003**	**0.0000**	**11.5196**	**11.5196**	**3.6100e-003**	**0.0000**	**11.6100**

3.4 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	4.7000e-003	1.1600e-003	1.0000e-005	2.8000e-004	2.0000e-005	3.0000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	1.0822	1.0822	7.0000e-005	0.0000	1.0840
Worker	4.9000e-004	3.8000e-004	4.1700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0864	1.0864	3.0000e-005	0.0000	1.0872
Total	**6.4000e-004**	**5.0800e-003**	**5.3300e-003**	**2.0000e-005**	**1.4900e-003**	**3.0000e-005**	**1.5200e-003**	**4.0000e-004**	**3.0000e-005**	**4.3000e-004**	**0.0000**	**2.1686**	**2.1686**	**1.0000e-004**	**0.0000**	**2.1712**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.1100e-003	0.0814	0.0840	1.3000e-004		4.3000e-003	4.3000e-003		3.9700e-003	3.9700e-003	0.0000	11.5196	11.5196	3.6100e-003	0.0000	11.6100
Paving	7.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0160**	**0.0814**	**0.0840**	**1.3000e-004**		**4.3000e-003**	**4.3000e-003**		**3.9700e-003**	**3.9700e-003**	**0.0000**	**11.5196**	**11.5196**	**3.6100e-003**	**0.0000**	**11.6100**

3.4 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	4.7000e-003	1.1600e-003	1.0000e-005	2.8000e-004	2.0000e-005	3.0000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	1.0822	1.0822	7.0000e-005	0.0000	1.0840
Worker	4.9000e-004	3.8000e-004	4.1700e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0864	1.0864	3.0000e-005	0.0000	1.0872
Total	**6.4000e-004**	**5.0800e-003**	**5.3300e-003**	**2.0000e-005**	**1.4900e-003**	**3.0000e-005**	**1.5200e-003**	**4.0000e-004**	**3.0000e-005**	**4.3000e-004**	**0.0000**	**2.1686**	**2.1686**	**1.0000e-004**	**0.0000**	**2.1712**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0330	0.2423	0.2534	3.9000e-004		0.0165	0.0165		0.0161	0.0161	0.0000	33.9946	33.9946	4.0900e-003	0.0000	34.0968
Total	**0.4469**	**0.2423**	**0.2534**	**3.9000e-004**		**0.0165**	**0.0165**		**0.0161**	**0.0161**	**0.0000**	**33.9946**	**33.9946**	**4.0900e-003**	**0.0000**	**34.0968**

3.5 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	7.0400e-003	1.7400e-003	2.0000e-005	4.2000e-004	3.0000e-005	4.5000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.6233	1.6233	1.1000e-004	0.0000	1.6260
Worker	7.9000e-004	6.0000e-004	6.6700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9500e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7383	1.7383	5.0000e-005	0.0000	1.7395
Total	**1.0100e-003**	**7.6400e-003**	**8.4100e-003**	**4.0000e-005**	**2.3500e-003**	**4.0000e-005**	**2.4000e-003**	**6.3000e-004**	**4.0000e-005**	**6.8000e-004**	**0.0000**	**3.3616**	**3.3616**	**1.6000e-004**	**0.0000**	**3.3655**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0330	0.2423	0.2534	3.9000e-004		0.0165	0.0165		0.0161	0.0161	0.0000	33.9946	33.9946	4.0900e-003	0.0000	34.0967
Total	**0.4469**	**0.2423**	**0.2534**	**3.9000e-004**		**0.0165**	**0.0165**		**0.0161**	**0.0161**	**0.0000**	**33.9946**	**33.9946**	**4.0900e-003**	**0.0000**	**34.0967**

3.5 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	7.0400e-003	1.7400e-003	2.0000e-005	4.2000e-004	3.0000e-005	4.5000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.6233	1.6233	1.1000e-004	0.0000	1.6260
Worker	7.9000e-004	6.0000e-004	6.6700e-003	2.0000e-005	1.9300e-003	1.0000e-005	1.9500e-003	5.1000e-004	1.0000e-005	5.3000e-004	0.0000	1.7383	1.7383	5.0000e-005	0.0000	1.7395
Total	**1.0100e-003**	**7.6400e-003**	**8.4100e-003**	**4.0000e-005**	**2.3500e-003**	**4.0000e-005**	**2.4000e-003**	**6.3000e-004**	**4.0000e-005**	**6.8000e-004**	**0.0000**	**3.3616**	**3.3616**	**1.6000e-004**	**0.0000**	**3.3655**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5545	2.6683	5.1668	0.0151	1.0974	0.0157	1.1131	0.2941	0.0147	0.3088	0.0000	1,390.7787	1,390.7787	0.0856	0.0000	1,392.9196
Unmitigated	0.5545	2.6683	5.1668	0.0151	1.0974	0.0157	1.1131	0.2941	0.0147	0.3088	0.0000	1,390.7787	1,390.7787	0.0856	0.0000	1,392.9196

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Golf Course	29.70	50.40	50.40	46,093	46,093
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	0.00	0.00	0.00		
User Defined Recreational	1,825.80	3,121.20	3121.20	2,842,041	2,842,041
Total	1,855.50	3,171.60	3,171.60	2,888,134	2,888,134

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Golf Course	16.60	8.40	6.90	1.80	79.20	19.00	38	18	44
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
User Defined Recreational	16.60	8.40	6.90	1.80	79.20	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Golf Course	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Parking Lot	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Quality Restaurant	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
User Defined Recreational	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	436.8586	436.8586	0.0180	3.7300e-003	438.4215
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	458.8139	458.8139	0.0189	3.9200e-003	460.4554
NaturalGas Mitigated	0.0355	0.3227	0.2711	1.9400e-003		0.0245	0.0245		0.0245	0.0245	0.0000	351.3146	351.3146	6.7300e-003	6.4400e-003	353.4023
NaturalGas Unmitigated	0.0361	0.3282	0.2757	1.9700e-003		0.0250	0.0250		0.0250	0.0250	0.0000	357.3244	357.3244	6.8500e-003	6.5500e-003	359.4478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	5.0313e+006	0.0271	0.2466	0.2072	1.4800e-003		0.0187	0.0187		0.0187	0.0187	0.0000	268.4891	268.4891	5.1500e-003	4.9200e-003	270.0846
User Defined Recreational	1.66471e+006	8.9800e-003	0.0816	0.0686	4.9000e-004		6.2000e-003	6.2000e-003		6.2000e-003	6.2000e-003	0.0000	88.8353	88.8353	1.7000e-003	1.6300e-003	89.3632
Total		**0.0361**	**0.3282**	**0.2757**	**1.9700e-003**		**0.0249**	**0.0249**		**0.0249**	**0.0249**	**0.0000**	**357.3244**	**357.3244**	**6.8500e-003**	**6.5500e-003**	**359.4478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	4.95984e+006	0.0267	0.2431	0.2042	1.4600e-003		0.0185	0.0185		0.0185	0.0185	0.0000	264.6759	264.6759	5.0700e-003	4.8500e-003	266.2488
User Defined Recreational	1.62355e+006	8.7500e-003	0.0796	0.0669	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	86.6387	86.6387	1.6600e-003	1.5900e-003	87.1535
Total		**0.0355**	**0.3227**	**0.2711**	**1.9400e-003**		**0.0245**	**0.0245**		**0.0245**	**0.0245**	**0.0000**	**351.3146**	**351.3146**	**6.7300e-003**	**6.4400e-003**	**353.4023**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	873632	278.3579	0.0115	2.3800e-003	279.3537
User Defined Recreational	566365	180.4561	7.4500e-003	1.5400e-003	181.1017
Total		**458.8139**	**0.0189**	**3.9200e-003**	**460.4554**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	820714	261.4969	0.0108	2.2300e-003	262.4325
User Defined Recreational	550376	175.3617	7.2400e-003	1.5000e-003	175.9890
Total		**436.8586**	**0.0180**	**3.7300e-003**	**438.4215**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3649	8.0000e-005	8.5100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0164	0.0164	4.0000e-005	0.0000	0.0175
Unmitigated	0.3649	8.0000e-005	8.5100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0164	0.0164	4.0000e-005	0.0000	0.0175

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3227					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0164	0.0164	4.0000e-005	0.0000	0.0175
Total	**0.3649**	**8.0000e-005**	**8.5100e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0164**	**0.0164**	**4.0000e-005**	**0.0000**	**0.0175**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3227					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-004	8.0000e-005	8.5100e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0164	0.0164	4.0000e-005	0.0000	0.0175
Total	**0.3649**	**8.0000e-005**	**8.5100e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0164**	**0.0164**	**4.0000e-005**	**0.0000**	**0.0175**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Turf Reduction

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	550.0056	0.1604	7.9400e-003	556.3811
Unmitigated	553.4949	0.1860	8.5700e-003	560.6976

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0 / 149.721	529.9961	0.0219	4.5300e-003	531.8921
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	5.00831 / 0.319679	23.4988	0.1641	4.0400e-003	28.8054
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**553.4949**	**0.1860**	**8.5700e-003**	**560.6976**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0 / 149.721	529.9961	0.0219	4.5300e-003	531.8921
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	4.22701 / 0.319679	20.0096	0.1385	3.4100e-003	24.4890
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**550.0056**	**0.1604**	**7.9400e-003**	**556.3811**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.7721	0.1047	0.0000	4.3903
Unmitigated	3.5442	0.2095	0.0000	8.7807

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	2.4	0.4872	0.0288	0.0000	1.2070
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	15.06	3.0570	0.1807	0.0000	7.5737
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**3.5442**	**0.2095**	**0.0000**	**8.7807**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	1.2	0.2436	0.0144	0.0000	0.6035
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	7.53	1.5285	0.0903	0.0000	3.7869
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**1.7721**	**0.1047**	**0.0000**	**4.3903**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Preparer's Resumes and Qualifications

PARKER
ENVIRONMENTAL CONSULTANTS

STAFF RESUMES

SHANE E. PARKER
President

Shane Parker has over 20 years of professional experience in the environmental consulting field. Mr. Parker's experience is extensive and varied and has included complex projects with multi-jurisdictional boundaries involving federal, state, regional and local governmental agencies. Mr. Parker has managed and authored CEQA- and NEPA-related documentation for numerous lead agencies throughout the southern California region, including the cities of Agoura Hills, Duarte, Inglewood, Lancaster, Los Angeles, Malibu, Manhattan Beach, Santa Clarita, Santa Monica, Murrieta, Rancho Palos Verdes, Torrance, and West Hollywood. Other lead agencies Mr. Parker has provided services to include the Community Redevelopment Agency of the City of Los Angeles, the County of Los Angeles Metropolitan Transportation Authority, the Los Angeles Memorial Coliseum Commission, the Los Angeles Community College District, and Santa Monica Community College District.

EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS

- B.A. in Geography/Environmental Studies-University of California, Los Angeles
- Association of Environmental Professionals (AEP) (Member)
- City of Malibu Environmental Review Board Member (2002-2007)
- Urban Land Institute (Member)
- Participates in CEQA and NEPA workshops and conferences

PROFESSIONAL EXPERIENCE

- 2010-Present, President, Parker Environmental Consultants, LLC
- 1999-2010, Vice President/Principal, Christopher A. Joseph & Associates
- 1995-1999, Senior Environmental Planner, PCR Corp.
- 1992 USFS, Forestry Technician/Seasonal Fire Fighter.

PROJECT EXPERIENCE

Hotels/Entertainment

- The Marriott Courtyard Suites and Residence Inn Hotel Project (LASED Specific Plan)
- Howard Hughes Center (EIR Addenda)
- Malibu Forge Lodge Bed & Breakfast (EIR)
- Malibu Civic Center/La Paz Project (EIR)
- Manhattan Beach Civic Center/Metlox (EIR)
- Schrader Hotel MND
- Los Angeles Sports Arena Redevelopment EIR
- Los Angeles Memorial Coliseum Redevelopment EIR

SHANE PARKER, President (Continued)

Schools and Institutional Campuses

- Emerson College (EIR)
- Kaiser Baldwin Hills Medical Office Building (MND)
- Kaiser West Los Angeles Medical Office Building Parking Structure (MND)
- Kaiser Mental Health Campus Medical Office Building (MND)
- University Gateway (Negative Declaration)
- Santa Monica College (SMC) - Malibu Campus (EIR)
- SMC Bundy Campus Master Plan (EIR)
- SMC Madison Theater Project (EIR) Schools and Institutional Campuses
- SMC Career and Educational Facilities Master Plan (2010 Update) (EIR)
- Southwestern School of Law Student Housing and Campus Improvement Project
- Calabasas Viewpoint School Modernization Program (EIR)
- Los Angeles Trade-Technical College 30- Year Master Plan (EIR)
- Colburn School of Performing Arts Expansion Project (IS/MND)
- City of Hope Arnold & Mabel Beckman Center for Cancer Immunotherapeutics and Tumor Immunology ("CITI") Building MND
- Fashion Institute of Design and Merchandising (FIDM) Residences (IS/MND)
- Hillcrest Christian School and Church EIR

High Density Residential/Mixed-Use

- City Market Los Angeles EIR
- Sunset and Gordon Mixed-Use Project (EIR)
- New Dana Strand Phase IV (MND)
- Abode Rolland Curtis Apartments (MND)
- Fallbrook Village (MND)
- Blake Street Riverfront Small Lot Subdivision (MND)
- 4000 Chevy Chase Small Lot Subdivision (MND)
- Topaz at 550 Main Street (MND)
- Olympic and Hill Mixed-Use Project (MND)
- Onyx Mixed-Use Project (MND)
- G12 Mixed-Use Project (MND)
- 801 S. Olive Street (MND)
- Olympic & Olive Mixed-Use Project (MND)
- 1,000 Grand Mixed-Use Project (MND)
- Olympic & Olive Mixed-Use Project (MND)
- Glass Tower/11th and Grand (MND)
- 8th and Grand Mixed-Use Project (MND)
- 1133 S. Hope Street (MND)
- Park 5th Project (Subsequent EIR)
- 9th and Hill Mixed-Use Project (MND)
- 8th and Spring Mixed Use Project (MND)
- Hollywood & Western Mixed-Use (MND)
- Valencia Project Mixed Use (MND)
- Wilshire Center Mixed Use Project

Historic/Cultural

- 504 Paseo del Mar EIR
- Getty Villa Master Plan EIR
- Coronel Apartment Project (EIR)
- Sapphire Mixed Use Project (EIR)
- 9th & Hill (Alexan) Mixed Use Project (MND) • Los Angeles Sports Arena Redevelopment EIR
- Los Angeles Memorial Coliseum Redevelopment EIR

STAFF RESUMES

ELISE LORENZANA, SENIOR ENVIRONMENTAL PLANNER

Ms. Lorenzana is a Senior Environmental Planner with a demonstrated experience in all aspects of the preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), with a focus on preparing air quality and greenhouse gas emission modeling and community-based noise and vibration impact assessments. Ms. Lorenzana has prepared numerous air quality and noise technical reports in compliance of CEQA. Ms. Lorenzana has been conducting air quality modeling pursuant to the SCAQMD's Air Quality Handbook (1993) and is experienced in utilizing CARB's CalEEMod air quality modeling platform for quantifying air quality emissions for development projects. She also possesses in-depth knowledge of quantifying and modeling noise and vibration impacts from project operation, construction, vibration, and traffic noise; in conformance with the Federal Transit Administration and California Department of Transportation guidance and procedures. Ms. Lorenzana provides field support for community-based ambient noise measurements manages noise calculations data worksheets for quantification of noise impacts. She regularly conducts land use and analytical research assignments in support of a wide array of environmental issues including but not limited to land use/zoning, aesthetics/views, population and housing, traffic and circulation, community based noise impact assessments, public services, public utilities, air quality modeling and greenhouse gas emissions inventories. Ms. Lorenzana also assists in document production and quality control/quality assurance protocols.

EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS

- B.S. in Atmospheric, Oceanic & Environmental Sciences, University of California - Los Angeles, CA
- A.S. in Water Systems Technology - College of the Canyons, CA
- Certified California Water Distribution Operator, Grade D2
- Member of the Association of Environmental Professionals (2016 - Present)

PROFESSIONAL EXPERIENCE

- 2015-Present: Parker Environmental Consultants, Senior Environmental Planner
- 2014: National Aeronautics and Space Administration (NASA), Project Consultant
- 2013: USDA Forest Service, Riverside CA, Weather Observer
- 2012: PACE LA, Weatherization Intern
- 2010: CALPIRG, Environmental and Renewable Energy Policy Advocate

PROJECT EXPERIENCE

- SB Omega Project
- Hill Street Lofts Project
- Broadway Lofts Project
- Burbank 14-Unit Apt. Project
- 6477 Foothill Blvd. Carwash Project
- 940 Hill Street Project
- 2130 Violet Street Project
- Schrader Hotel Project
- Olympic and Hill Project
- 4th and Spring Hotel Project
- PATH Villas Hollywood Project
- 5950 Jefferson Blvd Project
- 6711 Sepulveda Residential Project

PARKER
ENVIRONMENTAL CONSULTANTS

STAFF RESUMES

ADRIANNA GJONAJ
Assistant Planner

Ms. Gjonaj has a Bachelor of Liberal Arts in Economics and Urban Studies from Loyola Marymount University. Ms. Gjonaj has prior experience with the Los Angeles Economic Development Corporation in assisting the Director of Innovation with projects relating to entrepreneurial developments in Los Angeles such as research on Incubators and Accelerators. She also organized the initial steps for Innovate LA 2017 – a two week long event showcasing the entrepreneurs and innovators in Los Angeles. Prior to her work with the LAEDC, she completed an internship with CURes (Center for Urban Resilience) and worked on a social science research study in which urban ecology is explored through sustainable development efforts. She completed a project for the city of Colton that analyzes the conditions of city owned trees and their productivity in regards to lowering energy costs and completed a Baldwin Hills study on efficiency of park developments. As part of Parker Environmental Consultants team, Adrianna assists in research and data collection, graphics, including site photos, noise monitoring and general document review and quality control. Ms. Gjonaj is also responsible for filing and recording various legal public notices with the Los Angeles County Clerk/Registrar's Office including NOPs and NOC/NOAs and NODs.

EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS
• Bachelor of Liberal Arts in Economics and Urban Studies, Loyola Marymount University, CA
• Association of Environmental Professionals (AEP)
• Economics Society (LMU), member.

PROFESSIONAL EXPERIENCE
• Present: Assistant Planner, Parker Environmental Consultants
• 1/2017-5/2017: LAEDC (Los Angeles Economic Development Corporation)
• 10/2016 – 05/2017: CURes (Center for Urban Resilience)
• 2/2016-8/2016: Enrou Inc.
• 9/2013-05/2017: Academic Affairs Budget Office; LMU

PROJECT EXPERIENCE
• Sunset and Gordon Supplemental EIR
• Kaiser Watts Learning Center Mitigation Monitoring and Reporting Program
• Olympic and Hill Mixed-Use Project (MND)
• Hope Street Tower Mixed-Use Project (MND)
• 2800 Casitas Avenue Lofts EIR
• Kaiser Mental Health Campus EIR
•Deluxe Hollywood Mixed-Use Project (SCEA)
• 3555 Figueroa Mixed-Use Project (Categorical Exemption)
• 13716 Victory Boulevard (Cat-Ex)
• 714-760 Grand View St (Cat-Ex)
•South Park Tower (SCEA)
•TopGolf Ontario Noise Monitoring