

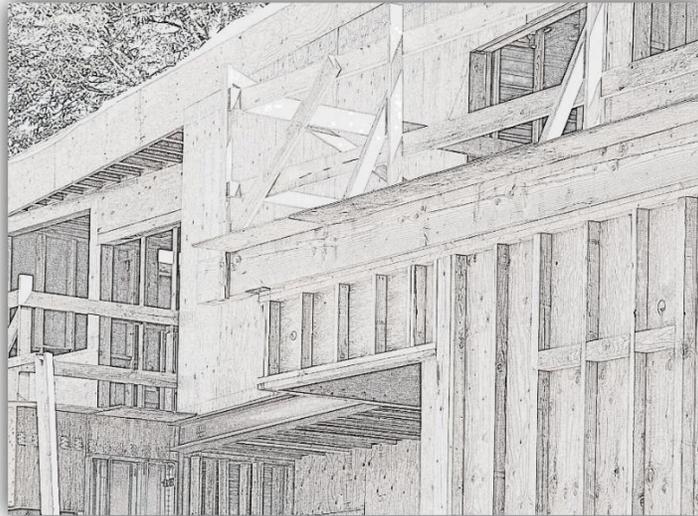
APPENDIX A

AIR QUALITY AND GREENHOUSE GAS IMPACT ASSESSMENT

Air Quality and Greenhouse Gas Impact Assessment

Melon Properties, LLC.

Imperial County, California



Prepared for:

Ericsson-Grant, Inc.

5145 Avenida Encinas, Suite H
Carlsbad, CA 92008

Prepared by:



January 2020

TABLE OF CONTENTS

	Page
SECTION 1.0 – INTRODUCTION.....	1
1.1. REPORT PURPOSE	1
1.2. PROJECT LOCATION.....	1
1.3. PROJECT DESCRIPTION	1
SECTION 2.0 – EXISTING CONDITIONS	2
2.1. CLIMATE/METEOROLOGY	2
2.1.1 Temperature and Precipitation	2
2.1.2 Humidity.....	2
2.1.3 Wind.....	3
2.2. LOCAL AIR QUALITY CONDITIONS.....	3
2.2.1 Air Pollutants.....	3
2.2.2 Pollutant Transport.....	6
2.2.3 Toxic Air Contaminants	7
2.2.4 Sensitive Receptors	7
2.3. GREENHOUSE GASES	8
2.3.1 GHG Emission Levels.....	9
2.3.2 Potential Environmental Effects.....	10
2.3.3 California Implications.....	10
SECTION 3.0 – REGULATORY CONTEXT	12
3.1.1 Environmental Protection Agency (EPA)	12
3.1.2 California Air Resources Board (CARB).....	12
3.1.3 Imperial County Air Pollution Control District (ICAPCD)	12
3.2. ATTAINMENT STATUS.....	13
3.2.1 Designations/Classifications	13
3.2.2 Federal Clean Air Act Requirements	13
3.3. REGULATORY FRAMEWORK	14
3.3.1 Federal Regulations and Standards	14
3.3.2 State Regulations and Standards	14
3.3.3 Local Regulations and Standards	15
3.3.4 Air Quality Management Plans (AQMP).....	15
3.4.1 Federal Climate Change Legislation	17
3.4.2 State Climate Change Legislation	18
SECTION 4.0 – BASELINE AIR QUALITY	20
4.1. LOCAL AMBIENT AIR CONCENTRATIONS.....	20
SECTION 5.0 – THRESHOLDS OF SIGNIFICANCE	21
5.1. CEQA SIGNIFICANCE DETERMINATION THRESHOLDS.....	21

5.2.	ICAPCD REGIONAL THRESHOLDS OF SIGNIFICANCE	21
5.3.	GREENHOUSE GAS / CLIMATE CHANGE	23
SECTION 6.0 – ENVIRONMENTAL IMPACTS.....		24
6.1.	ANALYSIS METHODOLOGY	24
6.2.	ANALYSIS OF ENVIRONMENTAL IMPACTS	24
	IMPACT 1 – Would the Project conflict with or obstruct implementation of the applicable air quality plan?	24
	IMPACT 2 – Would the Project result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	26
	IMPACT 3 – Would the Project expose sensitive receptors to substantial pollutant concentrations?.....	30
	IMPACT 4 – Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?.....	31
	IMPACT 5 – Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?	31
	IMPACT 6 – Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?.....	34

APPENDICES

APPENDIX A - Air Quality/Climate Change Calculations

APPENDIX B - CalEEMod Output Files

LIST OF TABLES

	<u>Page</u>
Table 1 – National and State Ambient Air Quality Standards	5
Table 2 – Designations/Classifications for the Basin	14
Table 3 – Air Quality Monitoring Summary for Project Area	20
Table 4 – Regional Operational Thresholds of Significance	22
Table 5 – Unmitigated Construction Emissions	27
Table 6 – Unmitigated Operational Emissions	27
Table 7 – Mitigated Construction Emissions	29
Table 8 – Mitigated Operational Emissions	29
Table 9 – Unmitigated Greenhouse Gas Emissions	32
Table 10 – California Greenhouse Gas Emission-Reduction Strategies	32

Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	microgram per cubic meter
AAQS	ambient air quality standards
AQIA	Air Quality Impact Analysis
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
AVTD	average vehicle trips per day
BAU	business as usual
CAAQS	California Ambient Air Quality Standards
CalEEMod™	California Emissions Estimator Model
CARB	California Air Resources Control Board
CAT	Climate Action Team
CEQA	California Environmental Quality Act
CH ₄	methane
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
EIR	environmental impact report
EPA	U. S. Environmental Protection Agency
ESRL	Earth System Research Laboratory
FCAA	Federal Clean Air Act
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICAPCD	Imperial County Air Pollution Control District
IPCC	Intergovernmental Panel on Climate Change
M	million
MtCO ₂ e	million tonne of CO ₂ e
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
NOAA	National Oceanic and Atmospheric Administration
N ₂ O	nitrous oxide
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
PFC	perfluorocarbon
PM	particulate matter
PM ₁₀	respirable particulate matter of 10 micrograms or less in size
PM ₁₀ SIP	PM ₁₀ State Implementation Plan
PM _{2.5}	fine particulate matter of 2.5 micrograms or less in size

Acronyms and Abbreviations

PM _{2.5} Plan	2013 SIP for the 2006 24-hr PM _{2.5} Moderate Nonattainment Area
ppm	parts per million
RACM	reasonably available control measures
RFP	Reasonable Further Progress
ROG	reactive organic gases
SCAQMD	South Coast Air Quality Management District
SF ₆	sulfur hexafluoride
SIP	State Implementation Plan
t	abbreviation for tonne (or metric ton)
TAC	toxic air contaminants
tCO _{2e}	tonne of carbon dioxide equivalents
tonne	metric ton (1.102 U.S. tons)
UNFCCC	United Nations Framework Convention on Climate Change
VMT	vehicle miles travelled
VOC	volatile organic compounds
WRI	World Resources Institute

SECTION 1.0 – INTRODUCTION

1.1. REPORT PURPOSE

The purpose of this Air Quality Impact Analysis (AQIA) is to estimate construction and operational emissions of criteria air pollutants and greenhouse gases from the proposed Melon Properties LLC Project (Project) in Imperial County, California. The California Environmental Quality Act (CEQA) Section 15063 requires the analysis of all phases of a proposed project.

1.2. PROJECT LOCATION

The Project is on an 8.19-acre project site owned by Melon Properties LLC (developer) and located along the northern City Limits of the City of Holtville. The project site consists of Assessor's Parcel Numbers (APN's) 045-390-006, 045-390-044, 045-390-065, 045-390-066, and 045-390-067. Approximately 7.75 acres of the total project site requires an annexation to the City.

1.3. PROJECT DESCRIPTION

The developer plans to build a 152-unit multi-family residential project on an 8.19-acre project site on the northeast corner of Melon Road and Alamo Road bordering the City of Holtville northwestern city limits. The project is located within the County of Imperial adjacent to the City of Holtville. As part of the project, the developer is proposing to annex the project site into the City of Holtville. The apartment mix is proposed with 32 senior apartments and 120 non-age restricted apartments.

SECTION 2.0 – EXISTING CONDITIONS

2.1. CLIMATE/METEOROLOGY

Meteorology is the study of weather and climate. Weather refers to the state of the atmosphere at a given time and place regarding temperature, air pressure, humidity, cloudiness, and precipitation. The term “weather” refers to conditions over short periods; conditions over long periods, generally at least 30 to 50 years, are referred to as climate. Climate, in a narrow sense, is usually defined as the “average weather,” or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. These quantities are most often surface variables such as temperature, precipitation, and wind.

Climatic conditions in Imperial County are governed by the large-scale sinking and warming of air in the semi-permanent tropical high-pressure center of the Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms except in winter when the high is weakest and farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal environs. Because of the weakened storms and barrier, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection.

The combination of subsiding air, protective mountains, and distance from the ocean all combine to limit precipitation severely. Rainfall is highly variable with precipitation from a single heavy storm sometimes exceeding the entire annual total during a later drought condition.

Imperial County enjoys a year-round climate characterized by a temperate fall, winter, and spring and a harsh summer. Humidity often combines with the valley's normal high temperatures to produce a moist, tropical atmosphere that frequently seems hotter than the thermometer suggests. The sun shines, on the average, more in the Imperial County than anywhere else in the United States.

2.1.1 Temperature and Precipitation

The nearest National Weather Service Cooperative Observer Program weather station to the project is the station in Calexico located approximately 10 miles south-southwest of the Project. At the Calexico¹, average recorded rainfall during the Period of Record (1904 to 2010) measured 2.69 inches, with 69 percent of precipitation occurring between October and March and 31 percent in just December and January. Monthly average maximum temperatures at this station vary annually by 36.7 degrees Fahrenheit (°F); 103.9 °F at the hottest to 67.2 °F at the coldest and monthly average minimum temperatures vary by 36.8 °F annually, i.e. from 39.0 °F to 75.8 °F. In fact, this station shows that the months of June, July, and August have monthly maximum temperatures greater than 100 °F

2.1.2 Humidity

Humidity in Imperial County is typically low throughout the year, ranging from 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50-60 percent but drop to about 10 percent during the day.

¹ Western U.S. Climate Historical Summaries. Western Regional Climate Center. <http://www.wrcc.dri.edu/Climsum.html>. Accessed January 2020.

Summer weather patterns are dominated by intense heat induced low-pressure areas that form over the interior desert.

2.1.3 Wind

The wind direction follows two general patterns. The first pattern occurs seasonally from fall through spring, where prevailing winds are from the west and northwest. Most of these winds originate in the Los Angeles Basins. The Imperial County area occasionally experiences periods of high winds. Wind speeds exceeding 31 mph occur most frequently in April and May. On an annual basis, strong winds, those exceeding 31 mph, are observed 0.6% of the time, where speeds of less than 6.8 mph account for more than one-half of the observed winds. Wind statistics indicate prevailing winds are from the west-northwest through southwest; however, a secondary flow pattern from the southeast is also evident.

2.1.4 Inversions

Air pollutant concentrations are primarily determined by the amount of pollutant emissions in an area and the degree to which these pollutants are dispersed in the atmosphere. The stability of the atmosphere is one of the key factors affecting pollutant dispersion. Atmospheric stability regulates the amount of vertical and horizontal air exchange, or mixing, that can occur within a given air basin. Horizontal mixing is a result of winds, as discussed above, but vertical mixing also affects the degree of stability in the atmosphere. An interruption of vertical mixing is called inversions.

In the atmosphere, air temperatures normally decrease as altitude increases. At varying distances above the earth's surface, however, a reversal of this gradient can occur. This condition, termed an inversion, is simply a warm layer of air above a layer of cooler air, and it has the effect of limiting the vertical dispersion of pollutants. The height of the inversion determines the size of the vertical mixing volume trapped below. Inversion strength or intensity is measured by the thickness of the layer and the difference in temperature between the base and the top of the inversion. The strength of the inversion determines how easily it can be broken by winds or solar heating.

Imperial County experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken allowing pollutants to disperse more easily. Weak, surface inversions are caused by radiational cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing down slope from the hills and pooling on the valley floor.

The presence of the Pacific high-pressure cell can cause the air to warm to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the buildup of pollutants. Highest or worst-case ozone levels are often associated with the presence of this type of inversion.

2.2. LOCAL AIR QUALITY CONDITIONS

2.2.1 Air Pollutants

As required by the Federal Clean Air Act (FCAA), the U. S. Environmental Protection Agency (EPA) has identified criteria pollutants and established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide, suspended particulate matter (PM), and lead. Suspended PM has standards for both PM with an aerodynamic diameter of 10 microns or less (respirable PM, or PM₁₀) and PM with an aerodynamic

diameter of 2.5 microns or less (fine PM, or PM_{2.5}). The CARB has established separate standards for the State, i.e. the California Ambient Air Quality Standards (CAAQS). The California Air Resources Board (CARB) established CAAQS for all the federal pollutants and sulfates, hydrogen sulfide, and visibility-reducing particles.

For some of the pollutants, the identified air quality standards are expressed in more than one averaging time in order to address the typical exposures found in the environment. For example, CO is expressed as a one-hour averaging time and an eight-hour averaging time. Regulations have set NAAQS and CAAQS limits in parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Table 1 summarizes the State and federal ambient air quality standards for all criteria pollutants.

2.2.1.1 Pollutants of Concern

Ozone

Ozone is not emitted directly to the atmosphere but is formed by photochemical reactions between reactive organic gases (ROG), or volatile organic compounds² (VOC), and oxides of nitrogen (NO_x) in the presence of sunlight. The long, hot, humid days of summer are particularly contributing to ozone formation; thus, ozone levels are of concern primarily during the months of May through September.

- Reactive organic gases (ROG) are defined as any compound of carbon, excluding CO, carbon dioxide (CO₂), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participate in atmospheric photochemical reactions. It should be noted that there are no State or national ambient air quality standard for ROG because ROGs are not classified as criteria pollutants. They are regulated, however, because a reduction in ROG emissions reduces certain chemical reactions that contribute to the formulation of ozone. ROGs are also transformed into organic aerosols in the atmosphere, which contribute to higher PM₁₀ and lower visibility.
- Nitrogen oxides (NO_x) serve as integral participants in the process of photochemical smog production. The two major forms of NO_x are nitric oxide (NO) and NO₂. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO₂ is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_x is an ozone precursor. A precursor is a directly emitted air contaminant that, when released into the atmosphere, forms, causes to be formed, or contributes to the formation of a secondary air contaminant for which an Ambient Air Quality Standard (AAQS) has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more AAQSs. When NO_x and ROG are released in the atmosphere, they can chemically react with one another in the presence of sunlight to form ozone.
- Ozone is a strong chemical oxidant that adversely impacts human health through effects on respiratory function. Ozone can also damage forests and crops. Ozone is not emitted directly by industrial sources or motor vehicles but instead, is formed in atmosphere. Tropospheric³ ozone is

² Emissions of organic gases are typically reported only as aggregate organics, either as Volatile Organic Compounds (VOC) or as Reactive Organic Gases (ROG). These terms are meant to reflect what specific compounds have been included or excluded from the aggregate estimate. Although EPA defines VOC to exclude both methane and ethane, and CARB defines ROG to exclude only methane, in practice it is assumed that VOC and ROG are essentially synonymous.

³ The troposphere is the atmospheric layer closest to the Earth's surface. Ozone produced here is an air pollutant that is harmful to breathe, and it damages crops, trees, and other vegetation.

formed by a complex series of chemical reactions involving NO_x, the result of combustion processes and evaporative ROG_s such as industrial solvents, toluene, xylene, and hexane as well as the various hydrocarbons that are evaporated from the gasoline used by motor vehicles or emitted through the tailpipe following combustion. Additionally, ROG_s are emitted by natural sources such as trees and crops. Ozone formation is promoted by strong sunlight, warm temperatures, and winds. High concentrations tend to be a problem in the Imperial County only during the hot summer months when these conditions frequently occur.

Table 1 – National and State Ambient Air Quality Standards⁴

Air Pollutant	Averaging Time	California Standard	National Standard	
Ozone (O ₃)	1-hour	0.09 ppm	—	
	8-hour	0.070 ppm	0.070 ppm	
Respirable particulate matter (PM ₁₀)	24-hour	50 µg/m ³	150 µg/m ³	
	Mean	20 µg/m ³	—	
Fine particulate matter (PM _{2.5})	24-hour	—	35 µg/m ³	
	Mean	12 µg/m ³	12.0 µg/m ³	
Carbon monoxide (CO)	1-hour	20 ppm	35 ppm	
	8-hour	9.0 ppm	9 ppm	
Nitrogen dioxide (NO ₂)	1-hour	0.18 ppm	100 ppb	
	Mean	0.030 ppm	0.053 ppm	
Sulfur dioxide (SO ₂)	1-hour	0.25 ppm	75 ppb	
	24-hour	0.04 ppm	—	
Lead	30-day	1.5 µg/m ³	—	
	Rolling 3-month	—	0.15 µg/m ³	
Sulfates	24-hour	25 µg/m ³	No Federal Standard	
Hydrogen sulfide	1-hour	0.03 ppm		
Vinyl chloride	24-hour	0.01 ppm		
Visibility-reducing particles	8-hour	Exinction coefficient of 0.23 per kilometer, visibility of ten miles or more due to particles when relative humidity is less than 70%.		

Abbreviations:

ppm = parts per million *ppb = parts per billion* *30-day = 30-day average*
µg/m³ = micrograms per cubic meter *Mean = Annual Arithmetic Mean*

Particulate matter (PM)

PM is a general term used to describe a complex group of airborne solid, liquid, or semi-volatile materials of various size and composition. Primary PM is emitted directly into the atmosphere from both human activities

⁴ Ambient Air Quality Standards. California Air Quality Board. <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed November 2019.

(including agricultural operations, industrial processes, construction and demolition activities, and entrainment of road dust into the air) and non-anthropogenic activities (such as windblown dust and ash resulting from forest fires). Secondary PM is formed in the atmosphere from predominantly gaseous combustion by-product precursors, such as sulfur oxides and NO_x, and ROG_s. The overwhelming majority of airborne PM in Imperial County is primary PM. The major source of primary PM is fugitive windblown dust, with other contributions from entrained road dust, farming, and construction activities.

Particle size is a critical characteristic of PM that primarily determines the location of PM deposition along the respiratory system (and associated health effects) as well as the degradation of visibility through light scattering. In the United States, federal and state agencies have established two types of PM air quality standards as shown in Table 1. PM₁₀ corresponds to the fraction of PM no greater than 10 microns in aerodynamic diameter and is commonly called respirable particulate matter, while PM_{2.5} refers to the subset of PM₁₀ of aerodynamic diameter smaller than 2.5 microns, which is commonly called fine particulate matter.

PM air pollution has undesirable and detrimental environmental effects. PM affects vegetation, both directly (e.g. deposition of nitrates and sulfates may cause direct foliar damage) and indirectly (e.g. coating of plants upon gravitational settling reduces light absorption). PM also accumulates to form regional haze, which reduces visibility due to scattering of light.

PM₁₀ is respirable, with fine and ultrafine particles⁵ reaching the alveoli deep in the lungs, and larger particles depositing principally in the nose and throat area. PM₁₀ deposition in the lungs results in irritation that triggers a range of inflammation responses, such as mucus secretion and bronchoconstriction, and exacerbates pulmonary dysfunctions, such as asthma, emphysema, and chronic bronchitis. Sufficiently small particles (PM_{2.5} and ultrafines) may penetrate the bloodstream and impact functions such as blood coagulation, cardiac autonomic control, and mobilization of inflammatory cells from the bone marrow. Individuals susceptible to higher health risks from exposure to PM₁₀ airborne pollution include children, the elderly, smokers, and people of all ages with low pulmonary/ cardiovascular function. For these individuals, adverse health effects of PM₁₀ pollution include coughing, wheezing, shortness of breath, phlegm, bronchitis, and aggravation of lung or heart disease, leading for example to increased risks of hospitalization and mortality from asthma attacks and heart attacks.

2.2.1.2 Other Criteria Pollutants

The standards for other criteria pollutants are either being met or are unclassified in the Basin, and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future.

2.2.2 Pollutant Transport

As stated above, ozone is a “secondary” pollutant, formed in the atmosphere by reactions between NO_x and ROG. These reactions are driven by sunlight and proceed at varying rates. Transport is the movement of ozone or the pollutants that form ozone from one area (known as the upwind area) to another area (known as the downwind area). Pollutant transport is a very complex phenomenon. Sometimes transport is a straightforward matter of wind blowing from one area to another at ground level, carrying ozone with it, but usually it is not that simple. Transport is three-dimensional; it can take place at the surface, or high above the ground. Meteorologists use the terms “surface” and “aloft” to distinguish these two cases. Often, winds can blow in

⁵ Ultrafine particles are nanoscale, less than 100 nanometers. Regulations do not currently exist for this size class of ambient air pollution particles, which are far smaller than the regulated PM₁₀ and PM_{2.5} particle classes and are believed to have several more aggressive health implications than those classes of larger particulates.

different directions at different heights above the ground. To complicate matters further, winds can shift during the day, pushing a polluted air mass first one way, then another. Finally, because ozone and ozone forming emissions from an upwind area can mix with locally generated ozone and locally generated emissions, it is often difficult to determine the origin of the emission causing high pollution levels. Political boundaries do not prevent transport of pollutants. Transport over distances of several hundred miles has often been documented in California.

The accurate determination of the impacts of transport requires detailed technical analyses in conjunction with modeling studies. The Imperial County 2017 State Implementation Plan for Ozone⁶ (2017 Plan) identifies how the transport of emissions and pollutants from Mexico and the coastal areas of Southern California influences ozone violations within Imperial County. Although the Imperial County is currently in attainment of the 1997 8-hour ozone NAAQS, it is important to note that any future analysis of air emissions impacting Imperial County must take into consideration the influence of transport from three distinct sources, that of the South Coast Air Basin via the Coachella Valley to the north, the San Diego Air Basin to the west and the international city of Mexicali, Mexico to the south.

2.2.3 Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TAC) are another group of pollutants of concern. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. The most important, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death. Toxic air contaminants are less pervasive in the urban atmosphere than the criteria air pollutants but are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects.

2.2.4 Sensitive Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather are defined as sensitive receptors by Imperial County Air Quality Control District (ICAPCD).

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as most of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

⁶ *Imperial County 2017 State Implementation Plan for the 2008 8-hour Ozone Standard*. Imperial County Air Pollution Control District. September 12, 2017.

The Project is surrounded by low density urban development. Single-family homes currently exist to the south across the street on Alamo Road. Five rural residential homes exist to the west across the street on Melon Road. One rural residential home exists to the north, across the street on Tenth Street (Underwood Road). Additional rural residential homes exist adjacent to the project site to the east.

2.3. GREENHOUSE GASES

Earth's temperature depends on the balance between energy entering and leaving the planet's system. When incoming energy from the sun is absorbed by the Earth system, Earth warms. When the sun's energy is reflected into space, Earth avoids warming. When energy is released back into space, Earth cools. Many factors, both natural and human, can cause changes in Earth's energy balance.

Constituent gases that trap heat in the Earth's atmosphere are called greenhouse gases (GHGs), analogous to the way a greenhouse retains heat. GHGs play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface, which would otherwise have escaped into space. Prominent GHGs contributing to this process include CO₂, methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. Without the natural heat-trapping effect of GHG, the earth's surface would be about 34 °F cooler⁷. This is a natural phenomenon, known as the "Greenhouse Effect," is responsible for maintaining a habitable climate. However, anthropogenic emissions of these GHGs in excess of natural ambient concentrations are responsible for the enhancement of the "Greenhouse Effect", and have led to a trend of unnatural warming of the Earth's natural climate known as global warming or climate change, or more accurately Global Climate Disruption. Emissions of these gases that induce global climate disruption are attributable to human activities associated with industrial/manufacturing, utilities, transportation, residential, and agricultural sectors.

Since the Industrial Revolution began around 1750, human activities have contributed substantially to climate change by adding CO₂ and other heat-trapping gases to the atmosphere. These greenhouse gas emissions have increased the greenhouse effect and caused Earth's surface temperature to rise. The primary human activity affecting the amount and rate of climate change is greenhouse gas emissions from the burning of fossil fuels.

The most important GHGs directly emitted by humans include CO₂, CH₄, N₂O, and several others. They are briefly discussed below:

- **Carbon dioxide (CO₂)** is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO₂ is produced when an organic carbon compound (such as wood) or fossilized organic matter, (such as coal, oil, or natural gas) is burned in the presence of oxygen. CO₂ is removed from the atmosphere by CO₂ "sinks", such as absorption by seawater and photosynthesis by ocean-dwelling plankton and land plants, including forests and grasslands. However, seawater is also a source of CO₂ to the atmosphere, along with land plants, animals, and soils, when CO₂ is released during respiration. Whereas the natural production and absorption of CO₂ is achieved through the terrestrial biosphere and the ocean, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. Prior to the industrial revolution, concentrations CO₂ were stable at a range of 275 to 285 ppm⁸. The National Oceanic and Atmospheric Administration

⁷ *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. California Environmental Protection Agency, Climate Action Team. March 2006.

⁸ *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007*. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

(NOAA's) Earth System Research Laboratory (ESRL)⁹ indicates that global concentration of CO₂ were 409.9 ppm in October 2019. This concentration of CO₂ exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores.

- **Methane (CH₄)** is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH₄ is combustible, and it is the main constituent of natural gas—a fossil fuel. CH₄ is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies and the buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH₄. Other anthropogenic sources include fossil-fuel combustion and biomass burning.
- **Nitrous oxide (N₂O)** is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N₂O is naturally produced in the oceans and in rainforests. Man-made sources of N₂O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Concentrations of N₂O also began to rise at the beginning of the industrial revolution.
- **Fluorinated gases**, including hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential (GWP) gases.

The GWP is the potential of a gas or aerosol to trap heat in the atmosphere. Individual GHG compounds have varying GWP and atmospheric lifetimes. The reference gas for the GWP is CO₂; CO₂ has a GWP of one. The calculation of the CO₂ equivalent (CO₂e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. CH₄'s warming potential of 25 indicates that CH₄ has a 25 times greater warming affect than CO₂ on a molecular basis. Additionally, N₂O's warming potential of 298 indicates that N₂O has a 298 times greater warming affect than CO₂ on a molecular basis. The larger the GWP, the more that a given gas warms the Earth compared to CO₂ over that time period. The time period usually used for GWPs is 100 years. A CO₂e is the mass emissions of an individual GHG multiplied by its GWP. GHGs are often presented in units called tonnes (t) (i.e. metric tons) of CO₂e (tCO₂e).

2.3.1 GHG Emission Levels

Per the World Resources Institute¹⁰ (WRI) in 2014, total worldwide GHG emissions were estimated to be 45,741 million (M) t of CO₂e (MtCO₂e) and GHG emissions per capita worldwide was 6.29 tCO₂e. These emissions exclude GHG emissions associated with the land use, land-use change, and forestry sector, and bunker fuels. The WRI reports that in 2014, total GHG emissions in the U.S. were 6,371 MtCO₂e, with average

⁹ *Trends in Atmospheric Carbon Dioxide. Earth System Research Laboratory.* National Oceanic and Atmospheric Administration. <http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html>. Accessed January 2020.

¹⁰ CAIT Climate Data Explorer. Historical Emissions. World Resources Institute. <http://cait.wri.org/historical/>. Accessed January 2020.

GHG emissions per capita of 20.00 tCO₂e and total GHG emissions in California were 454.5 MtCO₂e in 2014, with average GHG emissions per capita of 11.75 tCO₂e.

2.3.2 Potential Environmental Effects

Worldwide, average temperatures are likely to increase by 3 °F to 7 °F by the end of the 21st century¹¹. However, a global temperature increase does not directly translate to a uniform increase in temperature in all locations on the earth. Regional climate changes are dependent on multiple variables, such as topography. One region of the Earth may experience increased temperature, increased incidents of drought, and similar warming effects, whereas another region may experience a relative cooling. According to the Intergovernmental Panel on Climate Change's (IPCC's) Working Group II Report, climate change impacts to North America may include diminishing snowpack, increasing evaporation, exacerbated shoreline erosion, exacerbated inundation from sea level rising, increased risk and frequency of wildfire, increased risk of insect outbreaks, increased experiences of heat waves, and rearrangement of ecosystems, as species and ecosystem zones shift northward and to higher elevations¹².

2.3.3 California Implications

Even though climate change is a global problem and GHGs are global pollutants, the specific potential effects of climate change on California have been studied. The third assessment produced by the California Natural Resources Agency (CNRA)¹³ explores local and statewide vulnerabilities to climate change, highlighting opportunities for taking concrete actions to reduce climate-change impacts. Projected changes for the remainder of this century in California include:

- **Temperatures** – By 2050, California is projected to warm by approximately 2.7 °F above 2000 averages, a threefold increase in the rate of warming over the last century and springtime warming — a critical influence on snowmelt — will be particularly pronounced.
- **Rainfall** – Even though model projections continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability, improved climate models shift towards drier conditions by the mid-to-late 21st century in Central, and most notably, Southern California.
- **Wildfire** - Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning, with human activities continuing to be the biggest factor in ignition risk. Models are showing that estimated property damage from wildfire risk could be as much as 35 percent lower if smart growth policies were adopted and followed than if there is no change in growth policies and patterns.

The third assessment by CNRA not only defines projected vulnerabilities to climatic changes but analyzes potential impacts from adaptation measures used to minimize harm and take advantage of beneficial opportunities that may arise from climate change.

¹¹ Climate Change 2007: Impacts, Adaptation, and Vulnerability. Intergovernmental Panel on Climate Change. Website <http://www.ipcc.ch/ipccreports/ar4-wg2.htm>

¹² *ibid*

¹³ *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. California Natural Resources Agency. July 2012 / CEC-500-2012-007

The report highlights important new insights and data, using probabilistic and detailed climate projections and refined topographic, demographic, and land use information. The findings include:

- The State’s electricity system is more vulnerable than was previously understood.
- The Sacramento-San Joaquin Delta is sinking, putting levees at growing risk.
- Wind and waves, in addition to faster rising seas, will worsen coastal flooding.
- Animals and plants need connected “migration corridors” to allow them to move to habitats that are more suitable to avoid serious impacts.
- Native freshwater fish are particularly threatened by climate change.
- Minority and low-income communities face the greatest risks from climate change.

SECTION 3.0 – REGULATORY CONTEXT

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. EPA regulates at the national level; the CARB regulates at the State level; and the ICAPCD regulates at the air basin level in the Project area.

3.1. REGULATORY AGENCIES

3.1.1 Environmental Protection Agency (EPA)

EPA is the federal agency responsible for overseeing state air programs as they relate to the FCAA, approving State Implementation Plans (SIPs), establishing NAAQS and setting emission standards for mobile sources under federal jurisdiction. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

3.1.2 California Air Resources Board (CARB)

CARB is the State agency responsible for establishing CAAQS, adopting and enforcing emission standards for various sources including mobile sources (except where federal law pre-empts their authority), fuels, consumer products, and toxic air contaminants. CARB is also responsible for providing technical support to California's 35 local air districts, which are organized at the county or regional level, overseeing local air district compliance with State and federal law, approving local air plans and submitting the SIP to the EPA. CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles.

For the purposes of managing air quality in California, the California Health & Safety Codes Section 39606(a)(2) gave CARB the responsibility to, "based upon similar meteorological and geographic conditions and consideration for political boundary lines whenever practicable, divide the State into air basins to fulfill the purposes of this division". Imperial County is located within the Salton Sea Air Basin.

3.1.3 Imperial County Air Pollution Control District (ICAPCD)

The ICAPCD shares responsibility with CARB for ensuring that all State and federal ambient air quality standards are achieved and maintained within the County. State law assigns to local air pollution control districts the primary responsibility for control of air pollution from stationary sources, while reserving an oversight role for CARB. Generally, the air pollution control districts must meet minimum State and EPA program requirements. The air pollution control district is also responsible for the inspection of stationary sources, monitoring of ambient air quality, and planning activities such as modeling and maintenance of the emission inventory. Air pollution control districts in State nonattainment areas are also responsible for developing and implementing transportation control measures necessary to achieve the State ambient air quality. Regarding the SIP, air pollution control districts will implement the following activities:

1. Development of emission inventories, modeling process, trend analysis and quantification and comparison of emission reduction strategies.
2. Necessary information on all federal and State adopted emission reduction measures which affect the area.
3. Review of emissions inventory, modeling, and self-evaluation work.
4. Technical and strategic assistance, as appropriate, in the selection and implementation of emission reduction strategies.
5. Technical and planning assistance in developing and implementing processes to address the impact of emissions growth beyond the attainment date.
6. Maintenance of monitors and reporting and analysis of monitoring data.

7. Support for public education efforts by providing information to the community for means of outreach.
8. Coordinate communication between local areas and EPA to facilitate continuing EPA review of local work.
9. Expedient review of the locally developed plan, and if deemed adequate, propose modification of the AQMP to adopt the early progress plan.
10. Adoption of emission reduction strategies into the AQMP as expeditiously as possible.

3.2. ATTAINMENT STATUS

3.2.1 Designations/Classifications

EPA has identified nonattainment and attainment areas for each NAAQS. Under amendments to the FCAA, EPA has designated air basins or portions thereof as attainment, nonattainment, or unclassifiable, based on whether the national standards have been achieved. The State designates air basins or portions thereof for all CAAQS. The State designation criteria specify four categories: nonattainment, nonattainment-transitional, attainment, and unclassified.

3.2.2 Federal Clean Air Act Requirements

The FCAA requires plans to provide for the implementation of all reasonably available control measures including the adoption of reasonably available control technology for reducing emissions from existing sources. The FCAA encourages market-based approaches to emission control innovations.

On April 30, 2004, Imperial County was classified as a “marginal” nonattainment area for 8-Hour Ozone NAAQS under the FCAA. On March 13, 2008, the EPA found that Imperial County failed to meet attainment for the 8-Hour Ozone NAAQS by June 15, 2007 and was reclassified as “moderate” nonattainment. However, on November 17, 2009, EPA announced that Imperial County has met the 1997 federal 8-hour ozone standard—demonstrating improved air quality in the area. The announcement is based on three years of certified clean air monitoring data for the years 2006–2008. Table 2 shows the designations and classifications for the Basin.

In response to the opinion of the US Court of Appeals for the Ninth Circuit in *Sierra Club v. United States Environmental Protection Agency, et al.*, in August 2004 the EPA found that the Imperial Valley PM₁₀ nonattainment area had failed to attain by the moderate area attainment date of December 31, 1994, and as a result reclassified under the FCAA the Imperial Valley from a moderate to a serious PM₁₀ nonattainment area. Also, in August 2004, the EPA proposed a rule to find that the Imperial area had failed to attain the annual and 24-hour PM₁₀ standards by the serious area deadline of December 31, 2001. The EPA finalized the rule on December 11, 2007, citing as the basis for the rule that six Imperial County monitoring stations were in violation of the 24-hour standard during 1999–2001. The EPA’s final rule action requires the State to submit to the EPA by December 11, 2008 (within one year of the rule’s publication in the Federal Register) an air quality plan that demonstrates that the County will attain the PM₁₀ standard as expeditiously as practicable.

On November 13, 2009, EPA published Air Quality Designations for the 2006 24-Hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards¹⁴ wherein Imperial County was listed as designated nonattainment for the 2006 24-hour PM_{2.5} NAAQS. On April 10, 2014, CARB Board gave final approval to the 2013

¹⁴ Air Quality Designations for the 2006 24-Hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards. United States Environmental Protection Agency. Federal Register. Vol. 74, No. 218. November 13, 2009.

Amendments to Area Designations for CAAQs. For the State PM_{2.5} standard, effective July 1, 2014, the Calexico area was designated nonattainment, while the rest of the SSAB was designated attainment. The Project lies outside the Calexico nonattainment area.

Table 2 – Designations/Classifications for the Basin¹⁵

Pollutant	State Designation	Federal Designation (Classification)
Ozone	Nonattainment	Nonattainment (Marginal)
Respirable PM (PM ₁₀)	Nonattainment	Nonattainment (Serious) *
Fine PM (PM _{2.5})	Attainment***	Attainment **
Carbon Monoxide (CO)	Attainment	Unclassifiable/Attainment
Nitrogen Dioxide (NO ₂)	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Unclassifiable/Attainment
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	
Visibility reducing Particles	Unclassified	

* Designation for Imperial Valley Planning Area only, which is most of Imperial County save for a small stretch of land on the County's eastern end.
 ** A Determination of Attainment for the 2006 24-hour PM_{2.5} standard was made by EPA in June 2017.
 *** Designation for the whole of Imperial County except the Calexico area.

3.3. REGULATORY FRAMEWORK

This section contains a discussion of the federal, State, and local air quality regulations, plans, and policies applicable to the proposed Project. Federal, State, and local authorities have adopted rules and regulations that govern the emissions of air pollutants. This section focuses on current air quality regulations and their impact on the Proposed Project

3.3.1 Federal Regulations and Standards

The FCAA was enacted in 1970 and last amended in 1990 (42 USC 7401, et seq.) with the purpose of controlling air pollution and providing a framework for national, state, and local air pollution control efforts. Basic components of the FCAA and its amendments include NAAQS for major air pollutants, hazardous air pollutants standards, SIP requirements, motor vehicle emissions standards, and enforcement provisions. The FCAA was enacted for the purposes of protecting and enhancing the quality of the nation’s air resources to benefit public health, welfare, and productivity

3.3.2 State Regulations and Standards

CARB is responsible for responding to the FCAA, regulating emissions from motor vehicles and consumer products, and implementing the CCAA. The CCAA outlines a program to attain the CAAQs for ozone, sulfur dioxide, and CO by the earliest practical date. Since CAAQs are more stringent than NAAQSs in most cases, attainment of the CAAQS will require more emissions reductions than what would be required to show

¹⁵ Area Designations and Maps – 2018. California Air Resources Board. December 31, 2018.

attainment of the NAAQS. Like the federal system, the State requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region.

3.3.3 Local Regulations and Standards

The ICAPCD also has the authority to adopt and enforce regulations dealing with controls for specific types of sources, emissions of hazardous air pollutants, and New Source Review. The ICAPCD Rules and Regulations are part of the SIP and are separately enforceable by the EPA. The following ICAPCD rules potentially apply to the proposed project:

- **Rules 800** (General Requirements for Control of Fine Particulate Matter), **801** (Construction and Earthmoving Activities), **802** (Bulk Materials), **803** (Carry-out and Track-out), **804** (Open Areas), and **805** (Paved and Unpaved Roads) are intended to reduce the amount of PM₁₀ entrained in the ambient air as a result of emissions generated by anthropogenic fugitive dust sources by requiring actions to prevent, reduce, or mitigate PM₁₀ emissions. These rules include opacity limits, control measure requirements, and dust control plan requirements that apply to the construction of the Project.
- **Rule 407** (Nuisance) – intended to prevent the discharge of any air contaminant which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public.

3.3.4 Air Quality Management Plans (AQMP)

3.3.4.1 Ozone Plan

On December 3, 2009, the EPA issued a final ruling determining that the Imperial County “moderate” 8-hour ozone non-attainment area attained the 1997 8-hour NAAQS for ozone. The determination by EPA was based upon complete, quality-assured, and certified ambient air monitoring data for the years 2006 thru 2008. This determination effectively suspended the requirement for the state to submit an attainment demonstration, a Reasonable Further Progress (RFP) plan, contingency measures and other planning requirements for so long as Imperial County continues to attain the 1997 8-hour ozone NAAQS. However, this determination did not constitute a re-designation to attainment; therefore, the classification and designation status for Imperial County remain as a “moderate” non-attainment area of the 1997 8-hour ozone NAAQS. As such, Imperial County was required to submit for EPA approval a 2009 8-Hour Ozone “Modified” Air Quality Management Plan (Modified AQMP)¹⁶, which was approved July 13, 2010.

The Modified AQMP serves as a comprehensive planning document intended to provide guidance to the ICAPCD, the County, and other local agencies on how to continue maintaining the 1997 8-hour ozone NAAQS. The Modified AQMP includes control measures consisting of three components: 1) the ICAPCD’s Stationary Source Control Measures; 2) Regional Transportation Control Measures; and 3) the State Strategy. These measures primarily rely on the traditional command-and-control approach and as such provide the framework for ICAPCD rules that reduce ROG and NO_x emissions.

The current designation for the PM₁₀ standard remains nonattainment as of February 28, 2019.¹⁷ The ICAPCD is in the process of requesting an attainment redesignation and maintenance plan.¹⁸ However, Imperial

¹⁶ Final 2009 1997 8-Hour Modified Air Quality Management Plan, Imperial County Air Pollution Control District. July 13, 2010.

¹⁷ *Green Book PM-10 (1987) Area Information*. United States Environmental Protection Agency. <https://www.epa.gov/green-book/green-book-pm-10-1987-area-information>. Accessed March 2019.

¹⁸ *Draft Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter*. Imperial County Air Pollution Control District. September 2018.

County’s 2017 Ozone SIP¹⁹, demonstrates that Imperial County is in attainment of the 2008 8-hour ozone standard but for emissions emanating across the international border. In addition, a weight-of-evidence analysis has been included to show that Imperial County will maintain this status of attainment through the July 2018 attainment date.

As of November 2017, after consideration of CARB’s recommendations, the EPA “is designating Imperial County, CA as nonattainment for the 2015 ozone NAAQS”.²⁰

3.3.4.2 PM₁₀ Plan

The ICAPCD District Board of Directors adopted the PM₁₀ State Implementation Plan (PM₁₀ SIP) for Imperial County on August 11, 2009²¹. The PM₁₀ SIP meets EPA requirements to demonstrate that the County will attain the PM₁₀ standard as expeditiously as practicable. The PM₁₀ SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM₁₀ federal air quality standards.
- Annual reductions in PM₁₀ or PM₁₀ precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM₁₀, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- RFP and quantitative milestones.
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

The PM₁₀ SIP updated the emission inventory to incorporate revised cattle emissions, revised windblown dust model results, revised South Coast Association of Governments activity data, and updated entrained and windblown unpaved road dust estimates. The adjustments made to the emission inventory fell in two categories: (i) adjustments to incorporate new methodology and updated information (e.g., throughputs, activity data, etc.), and (ii) adjustments to incorporate emission reductions arising from the implementation of new control measures.

Additionally, the PM₁₀ SIP demonstrates that Imperial County attained the Federal PM₁₀ NAAQS, but-for international emissions from Mexico, based on 2006-2008 monitoring data. Attainment was due, in part, to ICAPCD’s November 2005 adoption and subsequent implementation of Regulation VIII fugitive dust rules; those rules were based on the related 2005 Best Available Control Measure (BACM) analysis.

¹⁹ 2017 Imperial County State Implementation Plan for the 2008 8-Hour Ozone Standard. Imperial County Air Pollution Control District, September 12, 2017.

²⁰ California - Final Area Designations for the 2015 Ozone National Ambient Air Quality Standards, Technical Support Document. United States Environmental Protection Agency. November 16, 2017.

²¹ 2009 Imperial County State Implementation Plan for Particulate Matter Less Than 10 Microns in Aerodynamic Diameter. Imperial County Air Pollution Control District. July 10, 2009.

Since the reclassification of Imperial County to serious nonattainment for PM₁₀ occurred on August 2004 and control of fugitive PM₁₀ emissions from the significant source categories that meets BACM stringency identified in the PM₁₀ SIP began in January 2006.

Major stationary sources are required to implement Best Available Control Technology (BACT) to control PM₁₀ emissions (Rule 207) and they are required to comply with the 20 percent opacity (Rule 403). In addition, stationary sources will be required to mitigate fugitive dust emissions from access roads, construction activities, handling and transferring of bulk materials, and track-out/carry-out according to the requirements of Regulation VIII.

Because the Imperial County is shown in the PM₁₀ SIP to have attained the 24-hour PM₁₀ NAAQS but-for international transport of Mexicali emissions in 2006-2008, reasonable further progress and milestone requirements are unnecessary, and specifically the 5% yearly emission reductions requirement does not apply to future years. As documented in the PM₁₀ SIP, all remaining SIP requirements applicable to the 2009 Imperial County PM₁₀ Plan have been successfully addressed.

3.3.4.3 PM_{2.5} Plan

The ICAPCD District Board of Directors adopted the PM_{2.5} SIP for Imperial County on December 2, 2014²². The PM_{2.5} SIP fulfills the requirements of the CAA for those areas classified as “moderate” nonattainment for PM_{2.5}. The PM_{2.5} SIP incorporates updated emission inventories, and analysis of reasonably available control measures (RACM), an assessment of RFP, and a discussion of contingency measures. Analyses in the PM_{2.5} SIP included assessing emission inventories from Imperial County and Mexicali; evaluating the composition and elemental makeup of samples collected on Calexico violation days; reviewing the meteorology associated with high concentration measurements; and performing directional analysis of the sources potentially impacting the Calexico PM_{2.5} monitor. As is demonstrated in the PM_{2.5} SIP, the primary reason for elevated PM_{2.5} levels in Imperial County is transport from Mexico. Essentially, the PM_{2.5} SIP demonstrated attainment of the 2006 PM_{2.5} NAAQS “but-for” transport of international emissions from Mexicali, Mexico.

3.4. CLIMATE CHANGE/GREENHOUSE GAS

3.4.1 Federal Climate Change Legislation

The federal government is taking several common-sense steps to address the challenge of climate change. EPA collects various types of GHG emissions data. This data helps policy makers, businesses, and EPA track GHG emissions trends and identify opportunities for reducing emissions and increasing efficiency. EPA has been collecting a national inventory of GHG emissions since 1990 and in 2009 established mandatory reporting of GHG emissions from large GHG emissions sources.

EPA is also getting GHG reductions through partnerships and initiatives; evaluating policy options, costs, and benefits; advancing the science; partnering internationally and with states, localities, and tribes; and helping communities adapt.

²² Imperial County 2013 SIP for the 2006 24-hr PM_{2.5} Moderate Nonattainment Area. Imperial County Air Pollution Control District. December 2, 2014.

3.4.2 State Climate Change Legislation

3.4.2.1 Executive Order S 3-05

On June 1, 2005, the Governor issued Executive Order S 3-05 which set the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

To meet these targets, the Climate Action Team (CAT) prepared a report to the Governor in 2006 that contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

3.4.2.2 Assembly Bill 32 (AB 32)

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as AB 32. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO₂, CH₄, N₂O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. CARB is the State agency charged with monitoring and regulating sources of emissions of GHGs in California that cause global warming in order to reduce emissions of GHGs. AB 32 also requires that by January 1, 2008, the CARB must determine what the statewide GHG emissions level was in 1990, and it must approve a statewide GHG emissions limit so it may be applied to the 2020 benchmark. CARB approved a 1990 GHG emissions level of 427 MtCO_{2e}, on December 6, 2007 in its Staff Report. Therefore, in 2020, emissions in California are required to be at or below 427 MtCO_{2e}.

Under the “business as usual or (BAU)” scenario established in 2008, Statewide emissions were increasing at a rate of approximately 1 percent per year as noted below. It was estimated that the 2020 estimated BAU of 596 MtCO_{2e} would have required a 28 percent reduction to reach the 1990 level of 427 MtCO_{2e}.

3.4.2.3 Climate Change Scoping Plan

The Scoping Plan²³ released by CARB in 2008 outlined the state’s strategy to achieve the AB-32 goals. This Scoping Plan, developed by CARB in coordination with the CAT, proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It was adopted by CARB at its meeting in December 2008. According to the Scoping Plan, the 2020 target of 427 MtCO_{2e} requires the reduction of 169 MtCO_{2e}, or approximately 28.3 percent, from the State’s projected 2020 BAU emissions level of 596 MtCO_{2e}.

However, in May 2014, CARB developed; in collaboration with the CAT, the First Update to California’s Climate Change Scoping Plan²⁴ (Update), which shows that California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB-32. In accordance with the United Nations Framework Convention on Climate Change (UNFCCC), CARB

²³ *Climate Change Scoping Plan: a framework for change*. California Air Resources Board. December 2008.

²⁴ First Update to the Climate Change Scoping Plan, Building on the Framework. California Air Resources Board. May 2014.

is beginning to transition to the use of IPCC's AR4's 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 MtCO_{2e}, therefore the 2020 GHG emissions limit established in response to AB-32 is now slightly higher than the 427 MtCO_{2e} in the initial Scoping Plan.

A Proposed Scoping Plan²⁵ builds upon the former Scoping Plan and Update by outlining priorities and recommendations for the State to achieve its long-term climate objectives. The Proposed Scoping Plan establishes a proposed framework of action for California to meet the climate target of a 40 percent reduction in GHGs by 2030, compared to 1990 levels. The major elements of the framework proposed are enhancement of the Renewables Portfolio Standard and the Low Carbon Fuel Standard; a Mobile Source Strategy, Sustainable Freight Action Plan, Short-Lived Climate Pollutant Reduction Strategy, Sustainable Communities Strategies, and a Post-2020 Cap-and-Trade Program; a 20 percent reduction in GHG emissions from the refinery sector and an Integrated Natural and Working Lands Action Plan.

²⁵ *The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. California Air Resources Board. January 20, 2017. URL: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

SECTION 4.0 – BASELINE AIR QUALITY

4.1. LOCAL AMBIENT AIR CONCENTRATIONS

Existing levels of ambient air concentrations and historical trends and projections in the project area are best documented by measurements made by the ICAPCD and CARB. Imperial County began its ambient air monitoring in 1976; however, monitoring of ozone began in 1986 at the El Centro monitoring station. Since that time, monitoring has been performed by the ICAPCD, CARB, and private industry. There are six monitoring sites in Imperial County from Niland to Calexico.

The nearest monitoring station to the Project site is in El Centro, on 9th Street, approximately 6.5 miles east of the Project. The El Centro Station monitors ozone, PM₁₀, PM_{2.5}, CO, and NO₂. Table 3 summarizes 2013 through 2018 published monitoring data from the CARB’s Aerometric Data Analysis and Management System for the El Centro Station.

Table 3 – Air Quality Monitoring Summary for Project Area²⁶

Air Pollutant	Monitoring Year					
Ozone – El Centro	2013	2014	2015	2016	2017	2018
Max 1 Hour (ppm)	0.110	0.101	0.099	0.108	0.110	0.102
Days > CAAQS (0.09 ppm)	7	2	2	4	4	2
Max 8 Hour (ppm)	0.088	0.080	0.079	0.082	0.092	0.090
Days > NAAQS (0.075 ppm)	11	5	6	2	8	3
Days > CAAQS (0.070 ppm)	23	13	12	11	17	14
PM₁₀ – El Centro	2013	2014	2015	2013	2014	2015
Max Daily National Measurement	147.9	120.4	165.9	144.7	118.9	88.3
Days > NAAQS (150 µg/m ³)	0	0	1	0	0	0
Days > CAAQS (50 µg/m ³)	10	15	7	10	15	4
PM_{2.5} – El Centro	2013	2014	2015	2013	2014	2015
Max Daily National Measurement	30.0	27.5	31.2	30.0	27.5	31.2
Days > NAAQS (35 µg/m ³)	0	0	0	0	0	0
NO₂ – El Centro	2013	2014	2015	2013	2014	2015
Max Hourly (ppb)	53	59	59	53	59	59
Days > NAAQS (100 ppb)	0	0	0	0	0	0
Days > CAAQS (0.18 ppm)	0	0	0	0	0	0

Abbreviations:

> = exceed **Bold** = exceedance N/A = not available
 ppm = parts per million ppb = parts per billion µg/m³ = micrograms per cubic meter
 CAAQS = California Ambient Air Quality Standard NAAQS = National Ambient Air Quality Standard

The monitoring data shows that El Centro Station demonstrated the general air quality problems of the Basin in that it exceeded the State and federal 8-hour and the State 1-hour ozone standards in all six years. The State PM₁₀ standard was exceeded in each of the six years and in 2015, the federal PM₁₀ standard was also exceeded. The federal PM_{2.5} standard and the federal NO₂ standard were not exceeded in any of the six years. The State and federal CO standards were never exceeded, and the station ceased monitoring for CO in 2012.

²⁶ iADAM Air Quality Data Statistics. California Air Resources Board. <http://www.arb.ca.gov/adam/welcome.html>. Accessed April 2016.

SECTION 5.0 – THRESHOLDS OF SIGNIFICANCE

The ICAPCD CEQA Air Quality Handbook²⁷ outlines significance determination thresholds. The significance criteria described in this section have been derived from this guidance document. In addition, significance criteria for stationary sources, which are permitted by the ICAPCD, are also cited in this section of the document.

5.1. CEQA SIGNIFICANCE DETERMINATION THRESHOLDS

In accordance with State 2019 CEQA Guidelines Appendix G, implementation of the project would result in a potentially significant impact if it were to:

- a) Conflict with or obstruct implementation of the applicable air quality plan.
- b) Result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- c) Expose sensitive receptors to substantial pollutant concentrations.
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Each of these threshold criteria is discussed in Section 6.2.

5.2. ICAPCD REGIONAL THRESHOLDS OF SIGNIFICANCE

Under the ICAPCD guidelines, an air quality evaluation must address the following:

- Comparison of calculated project emissions with ICAPCD emission thresholds.
- Consistency with the most recent Clean Air Plan for Imperial County.
- Comparison of predicted ambient pollutant concentrations resulting from the project to state and federal health standards, when applicable.
- The evaluation of special conditions that apply to certain projects.

5.2.1 Operational Thresholds

The ICAPCD has determined in their Guidelines that, because the operational phase of a proposed project has the potential of creating lasting or long-term impacts on air quality, it is important that a proposed development evaluate the potential impacts carefully. Therefore, air quality analyses should compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds in Table 4 below. Table 4 provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project.

²⁷ *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 as amended.* Imperial County Air Pollution Control District. Final December 12, 2017.

Table 4 – Regional Operational Thresholds of Significance²⁸

Pollutant	Emissions (lbs/day)	
	Tier I	Tier II
Carbon Monoxide (CO)	< 550	≥ 550
Reactive Organic Gases (ROG)	< 137	≥ 137
Nitrogen Oxides (NO _x)	< 137	≥ 137
Sulfur Oxides (SO _x)	< 150	≥ 150
Particulate Matter (PM ₁₀)	< 150	≥ 150
Particulate Matter (PM _{2.5})	< 550	≥ 550

From the ICAPCD’s perspective residential, commercial and industrial developments with a potential to emit below Tier I level will not be required to develop a Comprehensive Air Quality Analysis Report or an Environmental impact report (EIR). However, an Initial Study would be required to help the Lead Agency determine whether the project would have a less than significant impact. The Lead Agency is required by CEQA to disclose the identified environmental effects and the ways in which the environmental effects will be mitigated to achieve a level of less than significant. To achieve a level of insignificance the Lead Agency should require the implementation of all feasible standard mitigation measures listed in Section 7.2 of the ICAPCD Guidelines.

5.2.2 Construction Thresholds

In general, projects whose operational emissions qualify them as Tier I do not need to quantify their construction emissions; instead they adopt the standard mitigation measures for construction (See **Section 5.0**). The CEQA Guidelines states the “approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative.”

5.2.3 Local Concentrations of Criteria Pollutant Thresholds

Even though the ICAPCD’s CEQA Guidelines does not specifically address localized impacts from criteria pollutants, this AQIA analyzes the potential criteria pollutant health risks pursuant to the published opinion of *Sierra Club v. County of Fresno*²⁹ that a project with potential significance should provide an analysis of potential correlation that would be generated by the Project to adverse human health impacts that could be expected to result from the increase in criteria emissions for pollutants that exceed air quality standards.

5.2.4 Odor Threshold

While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the District. Any project with the potential to expose members of the public to objectionable odors frequently would be deemed to have a significant impact.

²⁸ *ibid*

²⁹ *Sierra Club v. County of Fresno*, Fifth District Court of Appeal. May 27, 2014.

5.3. GREENHOUSE GAS / CLIMATE CHANGE

5.3.1 California Environmental Quality Act (CEQA)

Effective March 18, 2010, CEQA Appendix G states that a project would have potentially significant GHG emission impacts if it would:

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

5.3.2 Local Significance Thresholds

It is widely recognized that no single project could generate enough GHG emissions to change the global climate temperature noticeably. However, the combination of GHG emissions from past, present, and future projects could contribute substantially to global climate change. Thus, project specific GHG emissions should be evaluated in terms of whether they would result in a cumulatively significant impact on global climate change.

Since the County of Imperial has not established a threshold of significance for GHGs, the ICAPCD recommends that the project be evaluated based on strategies developed by the CAT in a 2006 Report³⁰ that set the framework for the State's emission reduction strategies that could be implemented in California to reduce climate change emissions to ensure that the targets of AB-32 are met.

³⁰ Climate Action Team Report to Governor Schwarzenegger and the Legislature. California Environmental Protection Agency. March 2006.

SECTION 6.0 – ENVIRONMENTAL IMPACTS

6.1. ANALYSIS METHODOLOGY

Regional and local emissions of criteria air pollutants and precursors, and GHGs during project construction and operations were assessed in accordance with the methodologies described below. ICAPCD suggests that the “approach of the CEQA analyses for construction PM₁₀ impacts should be qualitative as opposed to quantitative”³¹ but that any projects which are greater than the level of significance for construction may have a significant impact on local and, under certain circumstances, regional air quality. Even though the phased sizes of the Project are not large, this AQIA has decided to include PM₁₀ in the quantification.

Construction of the Project would result in temporary emissions of ROG, CO, NO_x, SO_x, PM₁₀, and PM_{2.5}. Emissions from construction activities would result from fuel combustion and exhaust from construction equipment and vehicle traffic (i.e., worker commute and delivery truck trips), and grading and site work. Construction work included work to install force-main drainpipe, required to improve the Ninth Street Ditch. Emissions are estimated using the California Emissions Estimator Model (CalEEMod™), Version 2016.3.2, using model defaults except for employee information provided by the client³².

Operation of the Project would result in emissions of ROG, CO, NO_x, SO_x, PM₁₀, and PM_{2.5}. Emissions would be generated from the vehicular travel of the residents and service vehicles; natural gas usage; consumer products; landscaping; emissions from fireplaces; and architectural coatings. According to the 2013 SIP,³³ generally homes are not built with fireplaces in Imperial County since the determination to build a fireplace is cost-driven decision and not a necessity added to the lack of available wood and mild winters in Imperial County. Therefore, this AQIA modified the CalEEMod defaults to include no wood-burning stoves and only natural gas-fired fireplaces. Otherwise, operational emissions were estimated by applying the CalEEMod defaults.

Other air quality impacts (i.e., local emissions of CO, odors, and construction- and operation-related TACs) were assessed in accordance with methodologies recommended by CARB and ICAPCD.

6.2. ANALYSIS OF ENVIRONMENTAL IMPACTS

IMPACT 1 – Would the Project conflict with or obstruct implementation of the applicable air quality plan?

CEQA requires that projects be consistent with the applicable AQMP. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision-makers of the environmental efforts of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed.

ICAPCD’s CEQA On November 13, 2009, EPA published Air Quality Designations for the 2006 24-Hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards, wherein Imperial County was listed as

³¹ CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 and amended. Imperial County Air Pollution Control District, November 2007.

³² Melon Property Construction Trip Generation Memo. LOS Engineering, Inc. 1/8/2020.

³³ Final Imperial County 2013 SIP (2006 24-Hr PM_{2.5}). Imperial County Air Pollution Control District. December 2, 2014.

designated nonattainment for the 2006 24-hour PM_{2.5} NAAQS. On April 10, 2014, CARB Board gave final approval to the 2013 Amendments to Area Designations for CAAQSs. For the State PM_{2.5} standard, effective July 1, 2014, the Calexico area was designated nonattainment, while the rest of the SSAB was designated attainment. The Project lies outside the Calexico nonattainment area. Handbook states that a CAQAR of a proposed project should demonstrate compliance with the most recent ozone AQMP and PM₁₀ SIP. It also states the CAQAR should also demonstrate compliance with the Imperial County Rules and Regulations but also those of the State and federal regulations.

Ozone Air Quality Management Plan (AQMP)

In order to develop the Modified AQMP, a control strategy for meeting State and federal requirements is required. The ICAPCD control strategy included an interactive process of technology and strategy review supported by ambient air quality modeling. The air quality modeling assists in identifying current and remaining emission targets that would help to achieve the ambient air quality standards. The Modified AQMP control measures consist of three components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional Transportation Strategy and Control Measures; and 3) State Strategy. These measures primarily rely on the traditional "command and control" approach and as such provide the framework for ICAPCD Rules that reduce ROG and NO_x emissions.

At the heart of the AQMP are viable emission forecasts, which are used to evaluate effectiveness of control measures. The emission forecast provides estimates of future year emissions by projecting the effects of economic growth and existing regulations on future year emission inventories. For on-road motor vehicles vehicle emissions were projected using changes in activity levels related to vehicle miles travelled (VMT), vehicle turnover, emission controls, fuel characteristics, and consumer purchase patterns, primarily provide by CARB. The Project growth will not have a major impact on emission forecasts used in the AQMP.

PM₁₀ State Implementation Plan (PM₁₀ SIP)

The PM₁₀ SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM₁₀ federal air quality standards.
- Annual reductions in PM₁₀ or PM₁₀ precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM₁₀, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones.
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

In November 2005, revised Regulation VIII fugitive dust control measures were adopted, which form the core of the Imperial County PM₁₀ control strategy. Portions of Regulation VIII that would apply to Construction and Earthmoving Activities are:

- Required to limit Visible Dust Emissions to 20% opacity by complying with the following measures:
 - Phase work to minimize the amount of disturbed surface area at one time.

- Apply water or chemical stabilization.
 - Construct and maintain wind barriers around the activity site.
 - Restrict vehicular access to the area by fencing or signage.
 - Mitigate track out/carry out of bulk materials at the site in compliance with Rule 803.
 - Transport bulk material to, from, and around the site in compliance with Rule 802.
- For unpaved haul/access roads, unpaved traffic areas larger than 1 acre and with ≥ 75 average vehicle trips per day (AVTD), unpaved roads with ≥ 50 AVTD, and canal roads with ≥ 20 AVTD, visible dust emissions must be limited to 20% opacity by applying at least one of the stabilization methods described below;
- Paving,
 - Applying chemical stabilization as directed by the product manufacturer,
 - Applying and maintaining gravel, recrushed/recycled asphalt or other material of low silt content ($<5\%$) to a depth of three or more inches, or
 - Applying water one or more times daily

Operational activities related to the Project would not generate enough traffic to significantly impact regional transportation emissions budgets; will comply with all applicable ICAPCD Rules and Regulations³⁴; and will comply with all applicable State and federal requirements for attainment of air quality objectives.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified, and no mitigation measures are necessary.

IMPACT 2 – Would the Project result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

Project-Related Construction Emissions

Construction of the Project would result in emissions of the air pollutants ROG, NO_x, CO, PM₁₀, PM_{2.5}, and SO_x. Emissions from construction would result from fuel combustion and exhaust from construction equipment and vehicle traffic and fugitive dust from earth moving operations and roadways. Emissions from construction activities were estimated using CalEEMod.

ICAPCD CEQA Guidance recognizes the temporary effect of construction-related emissions, particularly regarding PM₁₀ emissions, i.e. past “experience has shown that the emissions from construction can cause substantial increases in localized concentrations of PM₁₀”³⁵. CalEEMod results indicates that the project would be estimated to emit up to 323.5 pounds per day during construction (see Table 5). CalEEMod outputs are in Appendix A.

³⁴ Imperial County Air Pollution Control District Rules and Regulations. Imperial County Air Pollution Control District. Revised June 2, 2009.

³⁵ CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 and amended. Imperial County Air Pollution Control District, November 2007.

While construction PM₁₀ emissions can vary greatly depending on the phase of the construction, level of activity, and other factors, ICAPCD states there are feasible mitigation or control measures which can be reasonably implemented to reduce PM₁₀ emissions significantly. Because particulate emissions from construction activities have the potential of leading to adverse health effects as well as nuisance concerns, such as reduced visibility, all projects are required to mitigate construction impacts by regulation, i.e. ICAPCD Regulation VIII.

Table 5 – Unmitigated Construction Emissions

Activity Year	Unmitigated Emissions (lbs/day)				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Year 2020	4.5	47.9	31.6	242.3	25.2
Year 2021	96.8	31.0	33.9	323.5	33.7
<i>Project Maximum Daily</i>	96.8	47.9	33.9	323.5	33.7

Project-Related Operational Emissions

The ICAPCD CEQA Handbook³⁶ states that the Initial Study should “compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds”. Presented in Table 6 are the estimated unmitigated emissions. Table 6 demonstrates that the Project has the potential to exceed the ICAPCD Regional Operational thresholds.

Table 6 – Unmitigated Operational Emissions

Sources	Pounds per day				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Area	4.15	0.14	12.55	0.07	0.07
Energy	0.07	0.59	0.25	0.05	0.05
Mobile	2.99	18.86	27.83	1,677.44	167.45
<i>Totals</i>	7.2	19.6	40.6	1,677.6	167.6
<i>ICAPCD Threshold</i>	137	550	137	150	550
Significant? (Y/N)	N	N	N	Y	N

Level of Significance Before Mitigation: Potentially significant for construction and operational PM₁₀ thresholds.

Mitigation Measures:

Construction:

³⁶ CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970, as amended. Imperial County Air Pollution Control District, December 12, 2017.

In this analysis, the CalEEMod results show the predominant construction related PM₁₀ impact comes from on-road entrained road dust. By default, CalEEMod assumes the percentage of paved and unpaved roads for each district as provided by the district. The ICAPCD has set that 50 percent of VMT in Imperial County is on paved roads and 50 percent is on unpaved roads. Personal communication with Monica Soucier of the ICAPCD³⁷ related that they have observed a propensity for people in the County to “take shortcuts” across open-access dirt roads and open spaces. She said the only way a Project can take credit for drastically less unpaved road percentage is to provide mitigation. Therefore:

MM AQ-1: The developer will construct permanent blockage to all dirt roads and open areas bordering the Project prior to beginning construction.

In addition, the following measures will be implemented, as part of compliance with the ICAPCD Regulation VIII Rules. Included here are the standard measures and one discretionary measure for fugitive PM₁₀ control as presented in the ICAPCD’s CEQA Handbook³⁸.

Standard Measures for Fugitive PM₁₀ Control

- All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.
- All on-site and off-site unpaved roads will be effectively stabilized, and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- All unpaved traffic areas one acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- The transport of bulk materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.
- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area.
- Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of enough water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized, and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

³⁷ Personal communication with Monica Soucier, Planning Division Manager. April 19, 2016.

³⁸ *ibid.*

Discretionary Measure for Fugitive PM₁₀ Control

- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site.

Table 7 shows construction emissions after implementing mitigations and compliance with Regulation VIII.

Table 7 – Mitigated Construction Emissions

Activity Year	Unmitigated Emissions (lbs/day)				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Year 2020	4.5	47.9	31.6	8.8	5.3
Year 2021	96.8	31.0	33.9	2.0	1.6
<i>Project Maximum Daily</i>	<i>96.8</i>	<i>47.9</i>	<i>33.9</i>	<i>8.8</i>	<i>5.3</i>

Operation:

The Project exceeds the ICAPCD Regional Operational Threshold for PM₁₀ in all years. This exceedance is overwhelmingly due to fugitive dust from on-road vehicular activity. As discussed in construction above, the ICAPCD assumes 50 percent of the VMT will be on unpaved roads. Implementation of MM AQ-1 will continue to be in effect with the permanent blockage, thereby reducing the fugitive dust from on-road traffic.

Table 8 – Mitigated Operational Emissions

Sources	Pounds per day				
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Area	4.15	0.14	12.55	0.07	0.07
Energy	0.07	0.59	0.25	0.05	0.05
Mobile	2.99	18.86	27.83	3.57	0.98
<i>Totals</i>	<i>7.2</i>	<i>19.6</i>	<i>40.6</i>	<i>3.7</i>	<i>1.1</i>
<i>ICAPCD Threshold</i>	<i>137</i>	<i>550</i>	<i>137</i>	<i>150</i>	<i>550</i>
Significant? (Y/N)	N	N	N	N	N

Level of Significance After Mitigation: As shown in Table 7 and Table 8, compliance with regulations and implementation of these mitigations would result in a reduction of the Project’s construction emissions and would reduce the Project’s operational emissions to less than the Regional Operational Threshold.

Cumulative Analysis

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts.

- Consistency with the ICAPCD project specific thresholds for construction and operation.
- Project consistency with existing air quality plans.
- Assessment of the cumulative health effects of the pollutants.

Project Specific Thresholds

As established previously in Impact 2, implementation of mitigations and compliance with ICAPCD regulations are expected to reduce impacts such that the Project will not exceed the ICAPCD regional significance thresholds. It is assumed that emissions that do not exceed the project specific thresholds will not result in a cumulative impact.

Air Quality Plans

The area in which the Project is located is in nonattainment for ozone and PM₁₀. As such, the ICAPCD is required to prepare and maintain an AQMP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. While the ICAPCD does not have direct authority over land use decisions, it was recognized that changes in land use and circulation planning were necessary to maintain clean air. As discussed above in Impact 1, the Project is compliant with the AQMP and would not result in a significant impact.

Cumulative Health Impacts

The area is in nonattainment for ozone and PM₁₀, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some of the sensitive individuals of the population experience adverse health effects.

The localized significance analysis in Impact 3 showed that during construction no localized adverse exposure was expected; therefore, the emissions of particulate matter and NO_x would not result in a significant cumulative health impact.

IMPACT 3 – Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as land uses where sensitive population groups are likely to be located (e.g., children, the elderly, the acutely ill, and the chronically ill). These land uses include residences, schools, childcare centers, retirement homes, convalescent homes, medical care facilities, and recreational facilities. Sensitive receptors that may be adversely affected by the Project include the surrounding residential land uses.

Impacts to sensitive receptors, particularly from dust, would vary depending on the level and type of activity, the silt content of the soil, and prevailing weather. As mentioned in Section 2.2.4, the project is surrounded by low density urban development. Single-family homes currently exist to the south across the street on Alamo Road. Five rural residential homes exist to the west across the street on Melon Road. One rural residential home exists to the north, across the street on Tenth Street (Underwood Road). Additional rural residential homes exist adjacent to the project site to the east.

The Project's compliance with Regulation VIII and implementation of MM AQ-1 will prevent the residences exposure to substantial pollutant concentrations.

Another way a project can establish significance with this impact is the potential to create a CO hotspot. CO hotspots can occur when vehicles are idling at highly congested intersections. According to the Draft Traffic Impact Analysis³⁹, all intersections are calculated to operate at a level of service B or better during both the

³⁹ Draft Traffic Impact Analysis, Melon Property Multi-Family (152 Apartments), County of Imperial/City of Holtville (NE Corner Melon/Alamo). LOS Engineering, Inc. January 8, 2020.

AM and PM peak hours with the addition of project traffic, thus not reaching the congestion necessary for a potential hotspot.

During construction activities, diesel equipment will be operating and DPM is known to the State as a TAC. However, the risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure, which is defined as 24 hours per day, 7 days per week, 365 days per year, for 70 years. The short-term nature of project construction would support that exposure to diesel exhaust emissions during construction would not be significant.

Level of Significance Before Mitigation: Potentially significant.

Mitigation Measures: Implementation of MM AQ-1 and compliance with Regulation VIII.

Level of Significance After Mitigation: Implementation of the mitigation and compliance with ICAPCD regulations will reduce the potential for exposure of the public to less than significant.

IMPACT 4 – Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The CEQA Guidelines indicate that a significant impact would occur if a project would create objectionable odors affecting a substantial number of people. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the ICAPCD. Because offensive odors rarely cause any physical harm and no requirements for their control are included in State or federal air quality regulations, the ICAPCD has no rules or standards related to odor emissions, other than its nuisance rule.

The Project is not an odor producer nor located near an odor producer. Whereas diesel exhaust will be emitted during construction, which is objectionable to some; concentrations will disperse rapidly from the Project site. Therefore, the Project would not result in a significant odor impact.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified, and no mitigation measures are necessary.

IMPACT 5 – Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

As discussed in Section 15064.4 of the CEQA Regulations, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.

The main source of GHG emissions associated with the Project would be combustion of fossil fuels in mobile sources during the construction and operation of Project. Additionally, CalEEMod estimates emissions from area sources, such as landscaping and hearths; energy uses, such as electricity and natural gas; and emissions associated with the supplying and treating the water and wastewater. Emissions of GHG were calculated using

the CalEEMod model. Estimated GHG emissions are summarized in Table 9. CalEEMod outputs are presented in Appendix A.

Table 9 – Unmitigated Greenhouse Gas Emissions

Category	CO ₂ e (tonnes/year)
Direct – Mobile (Amortized Construction)	12.68
Direct – Mobile (Operational)	1,024.83
Direct – Area Source	1.89
Indirect – Purchased Electricity (Power)	125.74
Indirect – Purchased Natural Gas (Power)	421.31
Indirect – Purchased Electricity (Water)	128.03
Direct – Fugitive – Solid Waste	35.16
TOTAL	1,749.6

However, since the County of Imperial has not established a threshold of significance for GHGs, the ICAPCD recommends that the project be evaluated based on strategies developed by the CAT in a 2006 Report⁴⁰ that set the framework for the State’s emission reduction strategies that could be implemented in California to reduce climate change emissions to ensure that the targets of AB-32 are met.

Table 10 presents Project’s design and/or mitigation that demonstrates compliance with State GHG strategies presented in the CAT report⁴¹.

Table 10 – California Greenhouse Gas Emission-Reduction Strategies

Strategy	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations to achieve the most feasible and cost-effective reduction in climate change emissions emitted by passenger vehicles and light-duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB-enforced standards; vehicles that would access the proposed project that are required to comply with the standards would comply.
Other Light-duty Vehicle Technology: New standards would be adopted and phased in beginning in the 2017 model year.	
Heavy-duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.	
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	The proposed project would be subject to State law.

⁴⁰ Climate Action Team Report to Governor Schwarzenegger and the Legislature. California Environmental Protection Agency. March 2006.

⁴¹ *ibid*

Strategy	Project Design/Mitigation to Comply with Strategy
<p>Hydrofluorocarbon Reduction: 1) ban retail sale of HFC in small cans, 2) require that only low-GWP refrigerants be used in new vehicular systems, 3) adopt specifications for new commercial refrigeration, 4) add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs, 5) enforce Federal ban on releasing HFCs.</p>	<p>This measure applies to consumer products. As CARB adopts regulations for these reduction measures, any products that the regulations apply to would comply with the measures.</p>
<p>Transportation Refrigeration Units, Off-road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.</p>	<p>Not applicable.</p>
<p>Manure Management: The proposed San Joaquin Valley Rule 4570 would reduce volatile organic compounds from confined animal facilities through implementation of control options.</p>	<p>Not applicable.</p>
<p>Alternative Fuels – Biodiesel Blends: CARB would develop regulations to require the use of 1% to 4% biodiesel displacement in California diesel fuel.</p>	<p>Not applicable.</p>
<p>Alternative Fuels – Ethanol: Increased use of ethanol fuel.</p>	<p>Not applicable.</p>
<p>Achieve 50% Statewide Recycling Goal: Achieving the State’s 50% waste diversion mandate, as established by the Integrated Waste Management Act of 1989 (AB 939 [Sher]), Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.</p>	<p>The proposed project would comply with the 1989 California Integrated Waste Management Act and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended.</p>
<p>Zero Waste – High Recycling: Additional recycling beyond the State’s 50% recycling goal.</p>	<p>The proposed project would comply with the 1989 California Integrated Waste Management Act and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended.</p>
<p>Landfill Methane Capture: Implement direct gas use or electricity projects at landfills to capture and use emitted methane.</p>	<p>Not applicable.</p>
<p>Urban Forestry: A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.</p>	<p>The proposed project would be subject to landscaping standards as specified in the Imperial County Landscaping Code (Div 3, Ch 2).</p>
<p>Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.</p>	<p>Not applicable. The proposed project area has not been forested in recent times.</p>
<p>Water Use Efficiency: 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water usage would reduce GHG emissions.</p>	<p>The proposed project would be required to comply with the water efficiency standards within the 2013 California Green Building Code (CalGreen).</p>
<p>Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the California Energy Commission (CEC) to adopt and periodically update its building energy efficiency standards, which apply to newly constructed buildings and additions and alterations to existing buildings.</p>	<p>The proposed project would be consistent with State law.</p>

Strategy	Project Design/Mitigation to Comply with Strategy
<p>Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes CEC to adopt and periodically update its appliance energy efficiency standards, which apply to equipment and devices that use energy and are sold or offered for sale in California.</p>	The proposed project would be consistent with State law.
<p>Cement Manufacturing: Cost-effective actions to reduce energy consumption and lower carbon dioxide emissions in the cement industry.</p>	Not applicable.
<p>Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. It is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and services.</p> <p>Governor’s office is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through State investments, incentives, and technical assistance, land use and technology strategies that provide for a prosperous economy, social equity, and a quality environment.</p> <p>Smart land use, demand management, ITS, and value pricing are critical elements for improving mobility and transportation efficiency. Specific strategies include promoting jobs/housing proximity and transit-oriented development, encouraging high-density residential/commercial development along transit/rail corridors, value and congestion pricing, ITS, traveler information/traffic control, incident management, accelerating the development of broadband infrastructure, and comprehensive, integrated, multimodal/intermodal transportation planning.</p>	Not applicable.
<p>Enteric Fermentation: Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.</p>	Not applicable.
<p>Green Buildings Initiative: Green Building Executive Order S-20-04 sets a goal of reducing energy use in public and private buildings by 20% by 2015 compared with 2003 levels. Consistent with mitigation.</p>	The proposed project would be required to comply with the CalGreen energy efficiency standards.
<p>California Solar Initiative: Installation of 1 million solar roofs on homes and businesses, or an equivalent 3,000 megawatts, by 2017; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and the creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.</p>	Not applicable.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified, and no mitigation measures are necessary.

IMPACT 6 – Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Neither the County of Imperial or ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs. However, since the long-term, operational GHG emissions are not

cumulatively considerable and the construction emissions are short-term, the Project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: No significant adverse impacts were identified, and no mitigation measures are necessary.