proposed project site are currently under contract pursuant to the Williamson Act, nor are any parcels in the vicinity of the site.

4.1.3.2 Thresholds of Significance

The criteria used to determine the significance of an impact to agricultural resources is based on the model initial study checklist in Appendix G of the CEQA Guidelines and the City of Brawley's significance criteria. The proposed Project would result in a significant impact on agricultural resources if it would:

AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program in the California Resources Agency, to non-agricultural use, which would jeopardize the future availability or productivity of agricultural land in the region;

AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract; and

AG-3: Involve other changes in the existing environment that, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use.

4.1.3.3 Impacts and Mitigation Measures

Threshold AG-1: Would the Project convert Important Farmland to non-agricultural use, which would jeopardize the future availability or productivity of agricultural land in the region?

Discussion

The proposed Project entails removal of all agricultural activity on the project site and development of the site for non-agricultural purposes. Figure 4.1-2 above shows the FMMP designations for the site. The site is comprised of Prime Farmland (45.2 acres, 16 percent of the site) and Farmland of Statewide Importance (231.6 acres, 84 percent of the site), both of which are considered Important Farmland by the CDC.

A LESA was prepared for the site to determine the agricultural value of the land (Appendix C). The site's LE score is 23.27, which is just under half of the potential high score of 50. This relatively low score is due to the fact that the majority of the site features soils of less-than-optimal quality (a greater amount of Prime Farmland-candidate soils would have yielded a higher score). The site's SA score is higher, at 41.25 out of a possible 50. The higher score here is due to the large size of the site, the ample availability of irrigation, and the presence of adjacent agricultural land on roughly half of the adjacent land. This equates to a total of 64.52, which means that the site is considered a significant agricultural resource by the CDC.

Impact Determination

Impact AG-1: Impacts to Important Farmland as designated by the CDC would be significant. This determination is based on the conversion of Prime Farmland and Farmland of Statewide Importance.

Mitigation Measures

MM AG-1: Preservation of Agricultural Land. Prior to the approval of the construction permit(s), including but not limited any permits which would allow grading, grubbing, trenching, or activity which will disturb existing agricultural land, the applicant and/or master developer shall either 1) provide an agricultural conservation easement, 2) enter into a 10-year Williamson Act Contract, or 3) pay into a mitigation fee to a local, regional, or statewide organization whose purpose includes acquisition and stewardship of agricultural conservation easements. Agricultural land considered for an easement or Williamson Act Contract shall be of equal or better quality as rated by the guidelines of the California Agricultural LESA and shall be proportional to the land proposed for conversion. Payment of the mitigation fee shall be determined by the City in consultation with the organization or agency managing the mitigation bank and shall be proportional to the potential agricultural impacts of the proposed project. A combination of 1), 2), or 3) is permissible subject to City approval.

Residual Impact
After mitigation, impacts would be less than significant.

Threshold AG-2: Would the Project conflict with agricultural zoning or a Williamson Act contract?

Discussion
Review of Imperial County Assessor indicates that the project site is not subject to a Williamson Act contract. The proposed development is consistent with the intent of the existing County zoning of the site, which anticipates urban development. The Project proposes prezoning to make the development compatible with the City zone designation of Planned Development, which would not include assignment of any agricultural zones; therefore, there is no conflict with agricultural zoning in the City.

Impact Determination
Implementation of the proposed Project would not break a Williamson Act contract, nor would it conflict with existing zoning. No impact would occur.

Mitigation Measures
Because there are no significant impacts related to this significance criterion, no mitigation measures are required.

Residual Impact
No impact would occur.

Threshold AG-3: Would construction and operation of the Project result in indirect impacts to existing agricultural uses?

Discussion
The project site is located just east of the City boundaries, and on the eastern edge of the City's SOI. Accordingly, it is a natural extension of the City's urban boundary, as planned for in the general plans of both the County and City. This also means that the site represents the westernmost edge of agricultural

land within the jurisdiction of the County as it approaches the City limits. East of the site are vast expanses of agricultural fields. The parcel immediately east of the site, across SR-111, is within the City's SOI, and is assigned the Agriculture land use designation in the City General Plan. Beyond that is agricultural land outside the SOI and designated as such by the County. The Project does not contain any elements that would hinder farm-related traffic.

The proposed Project would place new residences in close proximity to ongoing agricultural uses. Some residents may be sensitive to the activities on agricultural sites, as noise, odor, and visual elements common to safe and proper agricultural operations may prove annoying. However, both the County and City place a high value on ensuring the viability of proper agricultural operations in the area. The County maintains the Right to Farm Ordinance to inform potential owners of land within 0.25 mile of agricultural activity, ensuring that potential annoyances do not lead to excessive complaints that could hinder ongoing agricultural operations. The City acknowledges this ordinance in their General Plan and declares its support in RME Policy 8.2.1. This would minimize conflicts with ongoing agricultural operations and prevent indirect impacts.

Impact Determination

Because it is adjacent to development and does not represent the "leap-frog" or "checkerboard" development amidst agricultural uses, the Project would not create significant, indirect impacts on expansive, ongoing agricultural uses east of the site. Furthermore, the County's Right to Farm Ordinance, as part of the deed notice, ensures that agricultural uses in the area can continue to operate without being subject to activities which hinder existing agricultural operations. Impacts would be less than significant.

Mitigation Measures

Because there are no significant impacts related to this significance criterion, no mitigation measures are required.

Residual Impact

Impacts would be less than significant.

4.2

AIR QUALITY

The following section discusses the existing conditions, relevant regulations, and potential impacts in relationship to air quality and climate change. Each of the major sections ("Air Quality Setting," "Regulatory Setting," and "Impacts Analysis") is divided into two subsections, the first addressing air quality; the second greenhouse gas (GHG) emissions and climate change. Impacts on air quality from the construction and operation of the proposed Project were determined based on the existing regulatory framework and the relevant thresholds of significance, which are discussed herein. The potential GHG emissions associated with the Project are discussed in a cumulative context and in light of evolving regulations. Mitigation is proposed to reduce significant impacts where they would occur. However, the proposed Project would still result in significant and unavoidable air quality impacts.

4.2.1 Air Quality Setting

4.2.1.1 Existing Air Quality Conditions

The Project site is located in Imperial County, which is in the Salton Sea Air Basin (SSAB). The SSAB includes Imperial Valley and the central part of Riverside County, including Coachella Valley. The Imperial Valley is located between the Salton Sea, which lies to its north; the Anza-Borrego Desert State Park, which lies to the west; the Chocolate Mountains, which lie to the northeast; and the U.S./Mexican Border, which constitutes its most southern boundary line. The proposed residential and commercial development is located approximately 20 miles north of the U.S./Mexican Border.

Criteria Pollutants

General criteria pollutants for which the federal and state governments have established ambient air quality standards include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead. The primary pollutants of concern within the Imperial County Air Pollution Control District (ICAPCD) portion of the SSAB) are ozone and both particulate matter

smaller than 10 microns (PM10) and smaller than 2.5 microns (PM2.5) because the SSAB is not in attainment of regulatory air quality standards for these pollutants.

Ozone

O_3 is a colorless toxic gas, which is the chief component of urban smog. It enters the blood stream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. It also damages vegetation by inhibiting their growth. Although O_3 is not directly emitted, it forms in the atmosphere through a photochemical reaction between reactive organic gases (ROG) and NO_X under sunlight. The damaging effects of photochemical smog are generally related to the concentration of O_3. Meteorology and terrain play major roles in O_3 formation. Ideal smog conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. The greatest source of smog-producing gases is the automobile.

Reactive Organic Gases and Volatile Organic Compounds—Ozone Precursors

There are several subsets of organic gases, including ROGs and volatile organic compounds (VOCs). Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. ROGs include all hydrocarbons except those exempted by the California Air Resources Board (CARB). Therefore, ROGs are a set of organic gases based on state rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by federal law. The list of compounds exempt from the definition of VOCs is presented in District Rule 1102. Both VOCs and ROGs are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS) for ROGs. Carcinogenic forms of ROGs are considered to be toxic air contaminant (TACs). An example is benzene, which is a carcinogen.

Carbon Monoxide

CO is a colorless and odorless gas, which can interfere with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. In urban areas, CO is emitted by motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. Automobile exhausts release most of the CO in urban areas. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation

at dusk in urban areas between November and February. The highest CO concentrations measured in Imperial County are typically recorded during the winter.

Nitrogen Dioxide

NO_2 is a brownish gas that irritates the lungs. It can cause breathing difficulties at high concentrations. Like O_3, NO_2 is not directly emitted, but is formed through a reaction between NO and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM10 (see discussion of PM10 below). At atmospheric concentration, NO_2 is only potentially irritating. In high concentrations, the result is a brownish-red cast to the atmosphere and reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm).

Sulfur Dioxide

SO_2 is a product of high-sulfur fuel combustion. Main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. Industrial chemical manufacturing is another source of SO_2. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also cause plant leaves to turn yellow, and can erode iron and steel. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 concentrations have been reduced to levels well below the state and national standards, but further reductions in emissions are needed to attain compliance with standards for sulfates and PM10, of which SO_2 is a contributor.

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM10 and PM2.5 represent fractions of particulate matter. PM10 refers to particulate matter less than 10 microns in diameter, about $1/7^{th}$ the thickness of a human hair. PM2.5 refers to particulate matter that is 2.5 microns or less in diameter, roughly $1/28^{th}$ the diameter of a human hair. Major sources of PM10 include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. PM2.5 results from fuel combustion (from motor vehicles, power generation, industrial facilities), residential fireplaces, and wood stoves. In addition, PM2.5 can be formed in the atmosphere from gases such as SO_2, NO_X, and VOCs.

PM10 and PM2.5 pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM10 and PM2.5 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates, can cause lung damage directly. These substances can be absorbed

into the blood stream and cause damage elsewhere in the body; they can also transport absorbed gases such as chlorides or ammonium into the lungs and cause injury. Whereas particles 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system, particles 2.5 microns or less are so tiny that they can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, and contribute to haze and reduce regional visibility.

Health Effects of Criteria Air Pollutants

Air pollutants are recognized as having a variety of health effects on humans. Research by CARB shows that exposure to high concentrations of air pollutants can trigger respiratory diseases, such as asthma, bronchitis, and other respiratory ailments; and cardiovascular diseases. A healthy person exposed to high concentrations of air pollutants may be become nauseated or dizzy, may develop a headache or cough, or may experience eye irritation and/or a burning sensation in the chest. Ozone is a powerful irritant that attacks the respiratory system, leading to the lung tissue damage. Inhaled particulate matter, nitrogen dioxide, and sulfur dioxide can directly irritate the respiratory tract, constrict airways, and interfere with the mucous lining of the airways. Exposure to carbon monoxide, when absorbed into the bloodstream, can endanger hemoglobin, the oxygen-carrying protein in blood, by reducing the amount of oxygen which reaches the heart, brain, and other tissues. When air pollutant levels are high, a common occurrence in southern California, children, elderly, and people with respiratory problems are advised to remain indoors. Outdoor exercise also is discouraged because strenuous activity may cause shortness of breath and chest pains. A brief discussion of the criteria pollutants and their effects on human health and the environment is provided in Table 4.2-1.

Table 4.2-1. Health Effects Summary of the Major Criteria Air Pollutants

Pollutants	Sources	Primary Effects
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide (NO_2)	Motor vehicle exhaust. High temperature stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon containing substances, such as motor exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Particulate Matter (PM2.5 and PM10)	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.

Pollutants	Sources	Primary Effects
Sulfur Dioxide (SO_2)	Combustion of sulfur-containing fossil fuels. Smelting of sulfur bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coatings, etc.
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve construction. Behavioral and hearing problems in children.

Source: CARB 2008.

Long-term exposure to elevated levels of criteria pollutants could result in potential health effects. However, as stated in the Thresholds of Significance below, emission thresholds established by the air district are used to manage total regional emissions within an air basin, based on the air basin attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations that may affect or delay the projected attainment target year for certain criteria pollutants.

Air Quality Monitoring Data

The ICAPCD maintains and operates a network of ambient air monitoring stations throughout Imperial County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the NAAQS and the CAAQS. The nearest ambient monitoring station to the Proposed Project site is the Brawley – 220 Main Street station, which measures ozone, PM10, PM2.5, and CO. However, CO data was not available from the Brawley station for the years 2006 and 2007, so CO monitoring data was obtained from the El Centro Monitoring Station for those years. Ambient concentrations of pollutants over the last three years from the Brawley Monitoring Station are presented in Table 4.2-2. The 1-hour CAAQS and 8-hour NAAQS and CAAQS for ozone were not exceeded in any of the years. For PM10, the CAAQS 24-hour PM10 standard was exceeded multiple times, and the NAAQS 24-Hour standard was exceeded twice in 2007. The annual CAAQS for PM10 was exceeded for all three years. PM2.5 annual average concentration was not calculated for 2006 or 2007.

Table 4.2-2. Ambient Background Concentrations in the Vicinity of the Project

Pollutant Standards	2006	2007	2008
Ozone			
Maximum 1-hour concentration (ppm)	0.063	0.082	0.065
Maximum 8-hour concentration (ppm)	0.050	0.070	0.061
Number of Days Standard Exceeded			
CAAQS (1-hour) > 0.09 ppm	0	0	0
CAAQS (8-hour) > 0.070ppm	0	0	0
NAAQS (8-hour) > 0.075 ppm	0	0	0
Particulate Matter (PM10)			
Maximum 24-hour concentration ($\mu g/m^3$)	127	296	138
Annual average concentration ($\mu g/m^3$)	45.1	56.4	39.9
Number of Days Standard Exceeded			
NAAQS (24-hour) > 150 $\mu g/m^3$	0	2	0
CAAQS (24-hour) > 50 $\mu g/m^3$	16	26	10
CAAQS (annual) > 20 $\mu g/m^3$ exceeded?	Yes	Yes	Yes
Particulate Matter (PM2.5)			
Maximum 24-hour concentration ($\mu g/m^3$)	30.4	19.5	32.7
Annual average concentration ($\mu g/m^3$)	8.7 [a]	8.4 [a]	8.2
Number of Days Standard Exceeded			
NAAQS (24-hour) > 35 $\mu g/m^3$	0	0	0
NAAQS (annual) > 15 $\mu g/m^3$ exceeded?	N/A	N/A	No
CAAQS (annual) > 12 $\mu g/m^3$ exceeded?	N/A	N/A	No
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	2.59 [b]	1.67 [b]	1.71
Maximum 1-hour concentration (ppm)	14.3 [b]	2.5 [b]	2.5
Number of Days Standard Exceeded			
NAAQS (8-hour) $\geq$ 9 ppm	0	0	0
NAAQS (1-hour) $\geq$ 35 ppm	0	0	0
CAAQS (8-hour) $\geq$ 9.0 ppm	0	0	0
CAAQS (1-hour) $\geq$ 20 ppm	0	0	0

[a] Data was obtained from the El Centro Monitoring Station (Annual average PM2.5 concentrations for 2006 and 2007 were not available from the Brawley monitoring station

[b] Data was obtained from the El Centro Monitoring Station

NA = not available from current website data, ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter, mg/m^3 = milligrams per cubic meter, > = greater than, $\geq$ = equal to or greater than

Sources: CARB 2010a and EPA 2010a.

Attainment Status

The California Clean Air Act (CCAA) requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard, and are not used as a basis for designating areas as nonattainment.

Under the California standard, Imperial County is a moderate nonattainment area for O_3 and a nonattainment area for respirable particulate matter (PM10). This standard classifies Imperial County as an attainment area for CO and fine particulate matter (PM2.5) (CARB 2007). Under the federal standard, Imperial County is in "moderate" nonattainment for 8-hour O_3, serious nonattainment for PM10, and nonattainment for PM2.5. Attainment designations are presented in Table 4.2-3.

Table 4.2-3. ICAPCD Attainment Designations

Criteria Pollutant	Federal Designation	State Designation
O_3 (1-hour)	N/A	Nonattainment/Moderate
O_3 (8-hour)	Nonattainment/Moderate	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM10	Nonattainment/Serious	Nonattainment
PM2.5	Nonattainment	Unclassified

Source: CARB 2009b, EPA 2009b

Local Air Quality Plans

All areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the state air quality standards by its attainment dates. The Air Quality Attainment Plan (AQAP) is the region's plan for improving air quality in the region. It addresses the federal Clean Air Act (CAA) and CCAA requirements and demonstrates attainment with ambient air quality standards. ICAPCD is required to update their AQAP on a triennial basis, which details goals, policies, and programs for improving air quality and establishes thresholds for daily operation emissions. Environmental review of individual projects within Imperial County must demonstrate that daily construction and operational emissions thresholds, as established by ICAPCD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

On December 3, 2009 the US EPA issued a final ruling determining that the Imperial County "moderate" 8-hour ozone non-attainment area attained the 1997 8-hour standard. This determination effectively suspends the requirement for the state to submit an attainment demonstration, a reasonable further

progress plan, contingency measures and other planning requirements for so long as Imperial County continues to attain the 1997 8-hour ozone standard. Because this determination does not constitute a re-designation to attainment under the Clean Air Act section 107(d)(3) the designation status will remain "moderate" non-attainment for the 1997 8-hour ozone standard. However, Imperial County is required to submit for US EPA approval a "Modified" 2009 8-hour Ozone Air Quality Management Plan. The "Modified" 8-hour Ozone Air Quality Management Plan is currently being finalized (ICAPCD 2010).

~~Currently, the EPA is proposing to determine that the Imperial County portion of the Salton Sea Air Basin has attained the 1997 8-hour NAAQS for ozone. The State of California has requested this determination, which is based upon three years of certified ambient air monitoring data that show the area has monitored attainment of the 8-hour ozone NAAQS since the 2006-2008 monitoring period. If this proposed determination is made final, the requirements for the state to submit certain reasonable further progress requirements, an attainment demonstration, contingency measures, and other planning requirements of the CAA related to attainment of the 1997 8-hour ozone NAAQS would be suspended so long as the area continues to attain the 8-hour ozone NAAQS (Federal Register: September 23, 2009 [Volume 74, Number 183] pages 48495-48498). Once this EPA determination is made final, the ICAPCD will finalize efforts in the development of its Draft 8-hour Ozone Air Quality Management Plan (AQMP) that is currently underway (EPA 2009c).~~

With respect to PM10, the applicable PM10 air quality plan for the Imperial County portion of the Salton Sea Air Basin is the federal 2009 PM10 State Implementation Plan (SIP), adopted by the ICAPCD Board on August 11, 2009. The PM10 plan includes a range of measures intended to achieve attainment of the national PM10 standards in the Imperial Valley Planning Area, which covers the western three-quarters of the county. As part of the SIP process, ICAPCD applied for special status as "attainment but for emissions emanating outside the U.S." Imperial County has determined that heavy emissions are coming from northern Mexico, especially Mexicali. The 2009 PM10 SIP includes the adopted Best Available Control Measures (BACM), Regulation VIII rules for fugitive dust PM10, the use of the Exceptional Events Policy to exclude PM10 exceedances for certain wind-related events, and findings that, but for transport from Mexico, certain PM10 exceedances would not have occurred. The AQMP is included as part of the PM10 SIP. However, the USEPA rejected ICAPCD's assertion that transport of PM10 from the Calexico region was a contributing factor to the region's nonattainment status. The invalidation was not due to the control measures contained in the SIP. Because of the invalidation, there will be no change in the attainment status of the region, so the region will still be classified as a serious nonattainment area. Compliance with Regulation VIII is still required, even with EPA's invalidation of the SIP.

4.2.1.2 Existing Climate Change Conditions

Current Regional Climate

The current climate of Imperial County is characterized as a semi-arid desert with hot, dry summers and warm winters. A high-pressure cell maintains clear skies for much of the year. The annual average temperature in Brawley is approximately 73°F. The Project area experiences an average winter temperature of approximately 56°F and an average summer temperature of 88°F. Total precipitation in the Project area averages approximately 2.6 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. The average wind speed, as recorded at the Imperial County Airport Monitoring Station, is approximately 7.6 miles per hour (mph). Wind in the vicinity of the Project site predominantly blows from the west (Western Regional Climate Center 2009).

Long-term climatic patterns in a particular region can shift due to numerous factors. For example, during the last ice age (approximately 20,000 years ago) the American southwest was cooler and wetter, with the current desert areas supporting plants and animals that are now only found at higher altitude (Allen 2004). Significant changes in established climatic patterns that occurred prior to the industrial age are attributed to natural forces such as solar cycles, changes in the Earth's orbit or inclination, and volcanic activity.

Mounting scientific evidence compiled over the last half century document significant changes to the climate and strongly suggest that these recently observed changes are due to an increase of GHGs in Earth's atmosphere (Intergovernmental Panel on Climate Change [IPCC] 2007). In 1988, the World Meteorological Organization together with the United Nations Environment Programme established the IPCC to review, assess, and summarize the most recent scientific, technical, and socio-economic research regarding climate change. The most recent IPCC assessment states that "[w]arming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations" (IPCC 2007).

GHGs of interest, GHG inventory methods, and a brief overview of anticipated climate change impacts in California are provided below.

Greenhouse Gases

Certain gases present in Earth's lower atmosphere efficiently absorb infrared radiation, thus acting to trap heat close to Earth's surface. These gases are commonly referred to as GHGs. Without these natural GHGs, the Earth's surface would be approximately 61°F cooler. However, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. Increasing levels of GHGs in the atmosphere are directly correlated with increases in the average global surface temperature, a phenomenon often referred to as global warming. Warming of the lower atmosphere in turn induces a myriad of large-scale changes in global ocean circulation, global precipitation patterns, atmospheric composition, and biological distribution and timing. Collectively, these changes are called climate change.

According to the IPCC, , the world's leading body on climate change science, the atmospheric concentration of CO_2 in 2005 was 379 ppm compared to the pre-industrial levels (around 1850) of 280 ppm. This increase correlates with an increase in global average surface temperature of roughly 1°C during the same period. The IPCC attributes this recent warming to the release of GHGs associated with human activity.

GHGs are both naturally occurring and anthropogenic. Examples of GHGs that are produced both by natural processes and industry include CO_2, methane (CH_4), and N_2O. Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons [HFCs] and perfluorocarbons [PFCs]) and sulfur hexafluoride (SF_6). A brief description of each GHG is presented below.

Emissions of each gas are generally reported separately and in units of carbon dioxide equivalents (CO_2e). This unit reflects normalization based on the ability of each gas to trap heat in the atmosphere, along with

consideration of the pollutant's atmospheric lifetime, allowing each of the GHGs to be compared on a common basis. Non-CO_2 gases are converted to CO_2e units based on global warming potential (GWP) factors developed by the IPCC to represent the heat-trapping ability of each GHG relative to that of CO_2. For example, the GWP of methane is 21 because 1 metric ton of methane has 21 times more heat trapping capacity than 1 metric ton of CO_2. GWPs for the six GHGs are presented in Table 4.2-4.

Table 4.2-4. Global Warming Potential Factors for Greenhouse Gases

Species	Chemical Formula or Abbreviation	GWP_{100}
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrous oxide	N_2O	310
Sulfur hexafluoride	SF_6	23,900
Hydrofluorocarbons	HFCs	140 to 12,100
Perfluorocarbons	PFCs	6,500 to 12,500

Source: California Climate Action Registry [CCAR] (2009), which uses the IPCC Second Assessment Report published in 1995, unless no value was assigned in the document, in which case the GWP values are from the IPCC Third Assessment Report published in 2001. GWP values are based on 100-year atmospheric lifetimes and are consistent with international practices.

Carbon Dioxide (CO_2)

The major source of CO_2 emissions is fossil fuel combustion, thus atmospheric concentrations of CO_2, as compared to other GHGs, are most affected by human activity. CO_2 emissions are also a product of forest clearing, biomass burning, and cement production.

Anthropogenic emissions of CO_2 have increased concentrations in the atmosphere most notably since the Industrial Revolution; the concentration of CO_2 has increased from about 280 to 379 ppm over the last 250 years (IPCC 2007b). IPCC estimates that the present atmospheric concentration of CO_2 has not been exceeded in the last 650,000 years and is likely to be the highest ambient concentration in the last 20 million years (IPCC 2007a).

Methane (CH_4)

Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and oil, coal production, and incomplete fossil fuel combustion.

Anthropogenic emissions of methane are the result of growing rice, raising cattle, combusting natural gas, and mining coal (National Oceanic and Atmospheric Administration 2005). Atmospheric methane has increased from a preindustrial concentration of 715 to 1,775 parts per billion in 2005 (IPCC 2007b).

Nitrous Oxide (N_2O)

N_2O is a powerful GHG with a GWP of 310. Major sources of N_2O include soil cultivation practices, especially the use of commercial and organic fertilizers; fossil fuel combustion; nitric acid production; and biomass burning (Association of Environmental Professionals 2007).

N_2O concentrations in the atmosphere have increased from preindustrial levels of 270 ppb to 319 ppb in 2005 (IPCC 2007b).

Sulfur Hexafluoride (SF_6)

SF_6 has no known natural sources and is used as an electrical insulating fluid for power distribution equipment in the magnesium industry, and in semiconductor manufacturing, and also as a trace chemical for the study of oceanic and atmospheric processes (Association of Environmental Professionals 2007). SF_6 is the most powerful GHG currently considered by the IPCC, with a GWP of 23,900.

Hydrofluorocarbons (HFCs)

These chemicals (along with PFCs) were developed as alternatives to ozone-depleting substances (chlorofluorocarbons [CFCs]) whose production was outlawed under the Montreal Protocol but which served many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are powerful greenhouse gases with GWPs ranging from 140 (HFC-152a) to 12,100 (HFC-23).

Concentrations of HFCs have risen from zero to current levels. Because these chemicals are human-made, they do not exist naturally in ambient conditions

Perfluorocarbons (PFCs)

This is a group of human-made chemicals composed of carbon and fluorine: CF_4 and C_2F_6. These chemicals, along with HFCs, were developed as alternatives to ozone-depleting substances. They are also emitted as byproducts of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they are powerful greenhouse gases. CF_4 has a GWP of 6,300 and C_2F_6 has a GWP of 12,500.

Greenhouse Gas Inventories

GHG emissions are most commonly assessed in an inventory. A GHG inventory accounts for emissions of the gases listed above (in metric tons per year) from source sectors within a boundary, including but not limited to: transportation, building energy use, stationary sources, and agriculture. GHG inventories also account for processes that remove a GHG from the atmosphere within a defined boundary, referred to as sinks. GHG inventories can range in scale from those assessing emissions from an entire country or global region to those focused on a specific project. Rigorous and standardized inventory procedures and practices have been established at international, national, state, and local levels.

IPCC Inventory

In the 2007 IPCC Synthesis Report, global anthropogenic GHG emissions were estimated to be 49,000 million metric tons (MMT) of CO_2e in 2004, which is 24% higher than 1990 emissions levels. CO_2 contributed to 76.7% of total global GHG emissions; CH_4 accounted for 14.3%; N_2O contributed 7.9% of total emissions, and fluorinated gases (HFCs, PFCs, and SF_6) contributed the remaining 1.1% of global emissions in 2004. Energy supply was the sector responsible for the greatest amount of GHG emissions (25.9%), followed by industry (19.4%), forestry (17.4%), agriculture (13.5%), and transport (13.1%) (IPCC 2007b).

U.S. National Inventory

The EPA estimates that total U.S. GHG emissions for 2007 amounted to 7,150.1 MMT of CO_2e, which is 17% higher than 1990 levels. U.S. GHG emissions were responsible for 14.4% of global GHG emissions in 2004 (IPCC 2007b; EPA 2009c). The largest contributors to U.S. GHG emissions in 2007 were electricity generation (34.2%), transportation (27.9%), and the industrial sector (19.4%) (EPA 2009b).

California Inventory

In December 2006, the California Energy Commission (CEC) published the *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004.* This report indicates that California is the second largest emitter of GHGs in the United States next to Texas; however, California is second lowest in the nation in per capita CO_2 emissions, with only the District of Columbia being lower. Worldwide, California is the 12^{th} to 16^{th} largest emitter of CO_2 (CEC 2006a) and is responsible for approximately 2% of the world's CO_2 emissions (CEC 2006a). Between 1990 and 2000, California's population grew by 4.1 million people, and during the 1990 to 2003 period, California's gross state product grew by 83% (in dollars, not adjusted for inflation). However, California's GHG emissions grew by only 12% between 1990 and 2003. The report concludes that California's ability to slow the rate of growth of GHG emissions is largely due to the success of its energy efficiency, renewable energy programs, and commitment to clean air and clean energy. In fact, the state's programs and commitments lowered its GHG emissions rate of growth by more than half of what it would have been otherwise.

Transportation is responsible for 41% of the state's GHG emissions, followed by the industrial sector (21%), electricity generation (22%), agriculture and forestry (8%), and other sources (8%) (CEC 2006a). Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion and other sources. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills, among other sources. Sinks of CO_2 include uptake by vegetation and dissolution into the ocean. California GHG emissions in 2004 totaled approximately 492.1 MMT CO_2e.

Climate Change Impacts in California

Scientific studies, best represented by the IPCC's periodic reports, demonstrate that climate change is already occurring due to past GHG emissions. Forecasting of future growth and related GHG emissions under business as usual (BAU) conditions indicates large increases in those GHG emissions accompanied by an increasing severity of changes in global climate. The IPCC predicts substantial increases in temperatures globally of between 1.1 to 6.4°C (depending on scenario) by the year 2100 (IPCC 2007a).

Climate change impacts specific to the natural environment of California are listed below (CEC 2009):

- Rising sea levels along the California coastline, particularly in San Francisco and the San Joaquin Delta
- Increased frequency and duration of extreme-heat events
- An increase in heat-related human deaths, infectious diseases, and risk of respiratory problems caused by deteriorating air quality
- Reduced snow pack and stream flow in the Sierra Nevada mountains, affecting winter recreation and water supplies
- Potential increase in the severity of winter storms, affecting peak stream flows and flooding
- Changes in growing season conditions that could affect California agriculture, causing variations in crop quality and yield
- Changes in distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects
- Increased frequency and intensity of wildfires

4.2.2 Regulatory Setting

4.2.2.1 Air Quality Regulations

Air quality in the United States is governed by the CAA. In addition to being subject to requirements of the CAA, air quality in California is also governed by more stringent regulations under the CCAA. At the federal level, the CAA is administered by the EPA. In California, the CCAA is administered by CARB at the state level and by air districts at the local and regional level. The local air district for this project is the ICAPCD.

Federal Clean Air Act (CAA)

The EPA is responsible for enforcing the CAA and is also responsible for establishing the NAAQS. The NAAQS are required under the 1977 CAA and subsequent amendments. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters and establishes various emissions standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by CARB.

Areas that do not meet the federal ambient air quality standards shown in Table 4.2-5 are called *nonattainment* areas. For these nonattainment areas, the CAA requires states to develop and adopt SIPs, which are air quality plans showing how air quality standards will be attained. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards will be achieved. Failing to submit a plan or secure approval could lead to the denial of federal funding and permits for such improvements as highway construction and sewage treatment plants. In California, the EPA has

delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, the EPA is directed to prepare a federal implementation plan.

Table 4.2-5. Ambient Air Quality Standards

Pollutant	Average Time	Standard (ppm)		Standard ($\mu g/m^3$)		Violation Criteria	
		CA	U.S.	CA	U.S.	CA	U.S.
Ozone (O_3)	1 hour	0.09	NA	180	NA	If exceeded	If exceeded on more than 3 days in 3 years
	8 hours	0.070	0.075	137	147	NA	If exceeds 4th highest 8-hour concentration in a year, averaged over 3 years
Respirable Particulate Matter (PM10)	Annual mean	NA	NA	20	NA	If exceeded	If exceeded
	24 hours	NA	NA	50	150	If exceeded	If average 1% over 3 years is exceeded
Fine Particulate Matter (PM2.5)	Annual mean	NA	NA	12	15	If exceeded	If exceeded
	24 hours	NA	NA	NA	35	NA	If average 2% over 3 years is exceeded
Carbon Monoxide (CO)	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day/year
	1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day/year
Nitrogen Dioxide (NO_2)	Annual mean	0.030	0.053	57	100	NA	If exceeded
	1 hour	0.18	0.100	339	NA	If exceeded	If exceeded
Sulfur Dioxide (SO_2)	Annual mean	NA	0.030	NA	80	NA	If exceeded
	24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day/ year
	3 hour	NA	0.5	NA	1300	NA	If exceeded no more than 1 day/year
	1 hour	0.25	NA	655	NA	NA	NA
Lead (Pb)	30 days	NA	NA	1.5	NA	If equaled or exceeded	NA
	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day/year
	Rolling 3-	NA	NA	NA	0.15	NA	If exceeded

Pollutant	Average Time	Standard (ppm)		Standard (µg/m³)		Violation Criteria	
		CA	U.S.	CA	U.S.	CA	U.S.
	month average						
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.				If exceeded	NA
Sulfate particles (SO_4)	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Hydrogen sulfide (H_2S)	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride (C_2H_3Cl)	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA

Notes:
All standards are based on measurements at 25°C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
NA = not applicable.
Source: CARB 2010b.

California Clean Air Act (CCAA)

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting the state requirements of the CAA, administering the CCAA, and establishing the CAAQS. The CCAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county levels. CAAQS are shown in Table 4.2-5.

Imperial County Air Pollution Control District (ICAPCD)

The ICAPCD operates entirely within the SSAB and has jurisdiction over the entire area of Imperial County. The ICAPCD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary

source, area source, point source, and certain mobile source emissions. The ICAPCD is also responsible for establishing permitting requirements for stationary sources and ensuring that new, modified, or relocated stationary sources do not create net emission increases and, therefore, are consistent with the region's air quality goals. The proposed Project is subject to the provisions of ICAPCD Regulation VIII—Fugitive Dust Rules. Regulation VIII applies to any activity or human-made condition capable of generating fugitive dust. It requires the use of best available control measures (BACM) to suppress fugitive dust emissions (ICAPCD 2009a).

The ICAPCD has prepared its *CEQA Air Quality Handbook*, which is an advisory document that provides lead agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality in environmental documents. The document describes the criteria that ICAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether or not projects would have a significant adverse environmental impact, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The *CEQA Air Quality Handbook* provides guidance for assessing air quality impacts through an evaluation based on analysis levels by project size. This system has been developed by the ICAPCD to identify the level of analysis appropriate for a project based on the size and type of project. The ICAPCD has pre-determined the size (vehicle trips, or residential units, or square footage) below which many projects would not exceed significant thresholds. These projects are considered at a Tier I Level and require only site-specific mitigation. Larger projects are evaluated through use of a computer model, which calculates the projected air quality impacts of particular pollutants if the project was constructed and occupied. The calculations of the results of the proposed project buildout have been predetermined based on known emission factors for various activities that result from the proposed project. For example emission factors for cars generally show the amount of certain air pollutants emitted, per mile traveled. The air model recommended by the ICAPCD is the URBEMIS2007 (Version 9.2.4) for Windows, or the most current update of the URBEMIS model. This computer model shows the emissions from motor vehicles, area sources (water heaters, gas furnaces, fireplaces, and wood stoves), and construction activities. The model allows for design features, such as landscaping, and mitigation measures, such as the use of low-emission water heaters, to be applied to the project to show reductions in projected emissions from their inclusion. The results of the model are shown in pounds per day to quantify the proposed project's air quality impacts. Projects that result in impacts over the thresholds would be considered potentially significant under CEQA and require the preparation of an EIR.

The proposed project must comply with ICAPCD rules and regulations. Rules and regulations that may apply to the project include, but are not limited to, the following:

Rule 310 (Operational Development Fee). The ICAPCD adopted Rule 310 to assist in the reduction of excess emissions resulting from new land developments within Imperial County. Rule 310 essentially requires project proponents of new residential and commercial projects to mitigate their operational emissions if operational emissions exceed ICAPCD significance threshold criteria as listed in the *CEQA Air Quality Handbook.* If an operational impact is expected, the project proponent is given three options: provide offsite mitigation, pay an operational development fee, or implement some combination of both. Mitigation fees are separated into two accounts, one to fund reductions of ozone precursor emissions and the other to fund reductions of PM10 emissions. Funds are to be used to fund various mitigation projects throughout the County. To date, only one project has been selected: a dirt baseball field parking lot was paved with Rule 310 funds.

Rule 401 (Opacity of Emissions). Prohibits emissions in excess of specified opacity limits.

Rule 407 (Nuisance). Forbids the discharge of air contaminants that cause injury, detriment, nuisance, or annoyance to considerable number of persons or could cause injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations.

Rule 424 (Architectural Coatings). Establishes limits to the VOC content of architectural coatings sold and used within the ICACPD.

Rule 426 (Cutback Asphalt and Emulsified Materials). Restricts the sale and use of certain asphalt and paving materials.

Regulation VIII (Fugitive Dust Rules). Series of rules designed to reduce fugitive dust emissions from a variety of sources, including construction and earthmoving activities, carry- and track-out, bulk materials handling and storage, open areas, paved and unpaved roads, and agricultural activities.

4.2.2.2 Climate Change Regulatory Setting

This section discusses federal, state, and local legislation, policies, and regulations related to the analysis of climate change and GHG emissions within Imperial County.

Federal Climate Change Policy

Although there is currently no federal overarching law or policy related to climate change or the regulation of GHGs, recent activity, suggests that regulation may be forthcoming. Foremost among recent developments has been the U.S. Supreme Court's decision in *Massachusetts v. EPA*, the "Endangerment Finding," and "Cause or Contribute Finding," which are described below. Despite these findings, the future of GHG regulations at the federal level is still uncertain. EPA regulation may be pre-empted by congressional action should a cap and trade bill be passed prior to adoption of EPA regulation. The following summarizes recent legal cases, legislation, and policies related to climate change and GHG regulation at the federal level.

Massachusetts et al. v. Environmental Protection Agency et al. (2007)

In 2006, 12 U.S. states and cities (including California), in conjunction with several environmental organizations, sued to force EPA to regulate GHGs as a pollutant pursuant to the CAA in *Massachusetts et al. v. Environmental Protection Agency* (549 US 497) (2007). On April 2, 2007, the U.S. Supreme Court held that the EPA has the authority to regulate GHG emissions as a pollutant pursuant to the CAA.

EPA Finding of Endangerment (2007)

On April 17, 2009, the EPA issued a Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases (Finding) under the CAA. Through this Finding, the EPA Administrator proposed that

current and projected concentrations of CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 threaten the public health and welfare of current and future generations. Additionally, the Administrator proposed that combined emissions of CO_2, CH_4, N_2O, and HFCs from motor vehicles contribute to the atmospheric concentrations and thus to the threat of climate change. Although the Finding in itself does not place requirements on industry, it is an important step in the EPA's process to develop regulation.

During the 60-day public comment period, the EPA received over 380,000 public comments. On December 7, 2009, the EPA finalized the Finding. Such findings do not in themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

Update to Corporate Average Fuel Economy (CAFE) Standards (2009)

On May 19, 2009, President Barack Obama issued a requirement to automakers to increase fuel efficiency of cars manufactured in the U.S. to 35.5 miles per gallon (mpg) by 2016, four years ahead of the schedule set by the Energy Independence and Security Act of 2007. The new CAFE standards incorporate stricter fuel economy standards promulgated by the State of California, into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25%. Rule-making to adopt these new standards is still in process; therefore, these standards are not yet in effect.

California Climate Change Policy

California has adopted numerous pieces of legislation and regulatory-agency–enacted policies addressing various aspects of climate change and emissions mitigation. These policies and programs form the larger infrastructure of the state's long-term GHG mitigation and climate change adaptation program that includes research, energy conservation and infrastructure, transportation, emissions reporting protocols, the role of local governments, and adaptation plans. Additionally, Governor Arnold Schwarzenegger issued several executive orders related to the state's evolving climate change policy. These are discussed below.

Assembly Bill 32 (Chapter 488, Statutes of 2006)

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill provides a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions must be reduced to 1990 levels by the year 2020. California needs to reduce GHG emissions by approximately 29% below BAU (based on compliance with requirements in effect under applicable federal and state law) of year 2020 GHG emissions to achieve this goal. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. Key AB 32 milestones are as follows:

- Publish a list of discrete early action GHG emission reduction measures by June 30, 2007 (Completed).
- Establish a statewide GHG emissions cap for 2020, equivalent to the 1990 emissions level by January 1, 2008 (Completed). On December 6, 2007, CARB staff resolved an amount of 427 MMT of carbon dioxide equivalent ($MMTCO_2e$) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit.
- Adopt mandatory reporting rules for significant sources of GHGs by January 1, 2008 (Completed).
- Adopt a scoping plan by January 1, 2009, indicating how GHG emission reductions will be achieved from significant GHG sources via regulations, market-based compliance mechanisms, and other actions, including the recommendation of a de minimis threshold for GHG emissions, below which emission reduction requirements would not apply (Completed).
- Adopt and enforce regulations to implement the "discrete" actions by January 1, 2010.
- Adopt regulations by January 1, 2011, to achieve the maximum technologically feasible and cost-effective reductions in GHGs, including provisions for using both market-based and alternative compliance mechanisms.
- Establish January 1, 2012, as the date by which all regulations adopted prior to January 1, 2010, are to become operative (enforceable).

AB 32 Scoping Plan

In December 2008, CARB met the AB 32 mandate for approving a Scoping Plan for reducing California GHG emissions to 1990 levels by 2020 (CARB 2008b). The Scoping Plan and earlier CARB reports included the quantification of California's 1990 GHG emission levels at anticipated 2020 GHG emission levels based on projections of economic and population growth based on a BAU scenario of compliance with existing federal and state laws and continuation of existing economic trends and other activities. CARB then subtracted the 1990 target GHG emissions from the forecast 2020 emissions and identified a numeric reduction target for GHGs that needed to be achieved for California to comply with AB 32. The CARB calculations require a reduction of 28.3% (often rounded up to 29%) of GHG emissions in relation to the otherwise forecast BAU scenario to meet AB 32 goals.

The Scoping Plan includes a wide variety of measures to reduce GHG emissions from multiple sectors of the economy, ranging from large stationary sources such as refineries and power plants; to sector-specific activities such as local government operations at landfills, and transit operations such as high speed rail; to consumer- and population-based activities such as the private use of automobiles.

The Scoping Plan does not include a specific reduction target for mixed-use residential resort projects, nor other land use projects. Instead, the Scoping Plan identifies sector reductions that are relevant to these project activities. Sector reductions for which implementation laws (discussed below) have already been adopted in California include:

- Mobile source emission reductions from cleaner passenger automobiles and light duty trucks and cleaner gasoline standards in the Low Carbon Fuel Standard
- Buildings that result in lower GHG emissions based on implementation of the energy efficiency and other mandates in the California Green Building Standards

- Cleaner electricity generated by the energy sector in power plants, including mandates for the use of renewable energy resources such as solar and wind power, as required by various laws, including those discussed below

Collectively, these measures will dramatically reduce GHG from mixed-use, residential, commercial, resort, and other land use–driven sectors. The Bay Area Air Quality Management District, for example, has estimated that after taking into account reductions from the three reduction categories described above, the land use–driven sectors will be obligated to reduce GHG only 2.9% to achieve the AB 32 reduction targets (Bay Area Air Quality Management District 2009). The Scoping Plan also notes that SB 375 (discussed below), which specifically addresses GHGs in relation to land use planning and development in a phased planning and implementation process, and which is now well underway (also discussed below), will also play an important role in reducing GHG emissions by helping to encourage infill and higher density urban development in lieu of suburban sprawl.

Assembly Bill 1493—Greenhouse Gas Emission Standards for Automobiles

Known as "Pavley I," Assembly Bill (AB) 1493 standards are the nation's first GHG standards for automobiles. AB 1493 requires CARB to adopt vehicle standards that will lower GHG emissions from new light duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (Pavley II) has been proposed for vehicle model years 2017–2020. Together, the two standards are expected to increase average fuel economy to roughly 43 mpg by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, the EPA granted California's waiver request enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year. The new federal CAFE standards, described above, are the analogous national policy.

SB 1078/SB 107—Renewable Portfolio Standard

Established in 2002 under Senate Bill 1078 (SB 1078) and accelerated in 2006 under Senate Bill 107 (SB 107), California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities (IOUs), energy service providers (ESPs), and community choice aggregators (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The California Public Utilities Commission (CPUC) and CEC are jointly responsible for implementing the program.

Executive Order S-3-05—Greenhouse Gas Emission Reduction Targets

In 2005, Governor Schwarzenegger issued California Executive Order S-3-05 establishing the following GHG emission reduction targets for California:

- reduce GHG emissions to 2000 levels by 2010;
- reduce GHG emissions to 1990 levels by 2020; and
- reduce GHG emissions to 80% below 1990 levels by 2050.

Executive Orders are binding only on state agencies. Accordingly, S-3-05 will guide state agencies' efforts to control and regulate GHG emissions, but have no direct binding effect on local efforts.

Efficiency Standards for Residential and Non-Residential Buildings (Title 24)

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in Title 24, Part 6, of the California Code of Regulations (CCR) in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. New standards were adopted by the Commission in 2001 as mandated by AB 970 to reduce California's electricity demand. The new standards went into effect June 1, 2001. The standards have saved an estimated $56 billion in electricity and natural gas costs since 1978 and are projected to result in an additional $23 billion in savings by 2013.

Senate Bill 375

SB 375 provides for a new planning process to coordinate land use planning and regional transportation plans and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans, developed by metropolitan planning organizations (MPOs) relevant to the project area, including the Southern California Association of Governments (SCAG), to incorporate a "sustainable communities strategy" in their Regional Transportation Plans (RTPs) that will achieve GHG emission reduction targets for automobiles and light trucks to be set by CARB. The regional targets are scheduled to be released by CARB in September 2010. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. However, those provisions will not become effective until a sustainable communities strategy is adopted.

SB 375 will be implemented over the next several years. At the writing of this document, SCAG has not yet developed a sustainable communities strategy and is not expected to adopt an RTP incorporating a sustainable communities strategy until the next RTP update in 2012.

Senate Bill 97

SB 97 of 2007 requires that Office of Planning and Research (OPR) to prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The Natural Resources Agency adopted Amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

Local Climate Change Policy

No local, state, or regional agency has promulgated binding regulations for the treatment of GHG analysis or mitigation in CEQA documents. However, various California air districts have developed draft thresholds of significance, and their formalization is expected in 2010. The Attorney General's Office and the OPR have issued interim guidance for the assessment of GHGs within the CEQA process and both suggest as quantitative approach as is practicable. The ICAPCD has not adopted rules, regulations, or guidance for the treatment of GHGs in CEQA documents nor thresholds of significance for GHG emissions at the project level.

RME Objective 1.4: Reduce emissions through greater energy efficiency and conservation, and the use of renewable resources.

RME Objective 1.5: Make air quality education a priority for the City's effort to protect public health and achieve state and federal clean air standards.

RME Objective 1.6: By 2020, the City of Brawley shall seek to reduce greenhouse gas emissions under the control of the City to 1990 emissions level to support State implementation of AB 32.

RME Policy 1.6.1: The City will prepare and adopt a Climate Action Plan (CAP) within 2 years of adopting this General Plan Update. The CAP shall include an inventory of the 1990 level of greenhouse gas production within the City, and a projection of the level of GHG emissions by 2020. The CAP shall set out a greenhouse gas emissions reduction target and specific policies and actions to be undertaken by the City to reduce production of greenhouse gases to the 1990 level by 2020. The policies and actions will include incentives and regulatory requirements to reduce levels of generation by the private sector, actions to reduce the City's level of generation, and actions that the City will take in concert with other public agencies to reduce greenhouse gas generation. Development of the CAP will include a robust public and stakeholder process to ensure community input and ownership of the ultimately adopted CAP.

RME Policy 1.6.2: Include mechanisms to ensure regular review of progress toward the emission reduction targets established by the CAP, report progress to the public and responsible officials, and revise the plan as appropriate, using principles of adaptive management. Allocate funding to implement the plan. Provide funds for City staff to oversee implementation of the plan.

RME Policy 1.6.3: Establish a Brawley Climate Action Team (CAT) broadly representative of the community to provide formal structured input and review of the development of the Climate Action Plan.

4.2.3 Impact Analysis

4.2.3.1 Methodology

This section evaluates the proposed Project for both construction and operational impacts. Construction impacts include emissions associated with the construction activities within 210 acres of the 274-acre site, including a conservative estimate of 1,359 residential units of various types and densities (1,296 units are actually proposed), approximately 35 acres of commercial development, approximately 23 acres of mixed-use development (residential and commercial), and approximately 28 acres of park/open space area. The remaining acreage would be dedicated to utility easements and public right-of-way. Project construction is scheduled over four phases from 2010 to 2020.

Operational impacts include emissions associated with the "worst case" Project scenario, which for traffic (which directly affects air quality) is the Project "With Overlay." In terms of Project construction, both With and Without Overlay conditions are presented. To estimate emissions and evaluate air quality impacts, this EIR assumed that Project operations would begin following completion of the first phase of construction. The air quality model outputs reflect the most recent Project description and are included in Appendix D of this EIR.

All construction sites, regardless of size, must comply with the requirements contained within Regulation VIII. Although compliance with Regulation VIII does not constitute mitigation under the reductions attributed to environmental impacts, its main purpose is to reduce the amount of PM10 entrained into the atmosphere as a result of anthropogenic (human-made) fugitive dust sources. Therefore, under all preliminary modeling a presumption is made that all projects are in compliance with Regulation VIII. The Project construction would be subject to the requirements of ICAPCD Regulation VIII—Fugitive Dust Rules, which requires the implementation of all BACMs to control fugitive dust. Table 4.2-6 provides a list representative of the control measures required under Rule 801—Construction and Earthmoving Activities, but is not intended to cover every requirement of Regulation VIII. In addition, ICAPCD requires construction activities on sites of 10 or more acres for residential developments or five or more acres for non-residential development to submit a dust control plan. A dust control plan shall be prepared and submitted to the ICAPCD prior to the commencement of construction activities.

The CEQA Guidelines also state that Lead Agencies should seek to reduce emissions from construction equipment exhaust. Because of the availability of new control devices, required in the manufacturing of PM oxidation catalysts and NO_X absorbers, substantial reductions in PM and NO_X emissions from diesel engines is achievable. These new retrofit kits and, in some cases new original equipment, require the use of ultra low sulfur diesel fuel to be effective.

Table 4.2-6. ICAPCD Fugitive Dust and Exhaust Control Measures

Standard Mitigation Measures for Fugitive PM10 Control
a. 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.
b. 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.
c. All unpaved traffic areas one (1) 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.
d. 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.
e. 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.
f. Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.
g. 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.
Discretionary Mitigation Measures for Fugitive PM10 Control
a. Water exposed soil with adequate frequency for continued moist soil.
b. Replace ground cover in disturbed areas as quickly as possible

c. Automatic sprinkler system installed on all soil piles

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

e. Develop a trip reduction plan to achieve a 1.5 AVR for construction employees

f. Implement a shuttle service to and from retail services and food establishments during lunch hours

Standard Mitigation Measures for Construction Combustion Equipment

a. Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.

b. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.

c. Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use

d. Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set)

Enhanced Mitigation Measures for Construction Equipment

a. Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways

b. Implement activity management (e.g. rescheduling activities to reduce short-term impacts)

Source: ICAPCD 2007.

In accordance with the ICAPCD *CEQA Air Quality Handbook*, the URBEMIS 2007 model was used for this analysis. For purposes of applying the URBEMIS 2007 model, it was assumed that all of the above dust control measures would be implemented as part of the Project (i.e., not CEQA mitigation). The measures were applied in the URBEMIS2007 model to reduce fugitive dust emissions.

Construction heavy equipment requirements and associated emissions were estimated based on URBEMIS2007 default values for site grading, building construction, and paving activities. Non-mitigated ROG emissions from architectural coatings were estimated assuming the facility-wide average coatings exhibit an ROG content of 150 grams per liter (that ROG content corresponds to use of solvent-based coatings). Emissions associated with worker travel to and from the construction site and construction truck deliveries were estimated based on default values in the URBEMIS2007 model.

4.2.3.2 Thresholds of Significance

Appendix G of the State CEQA Guidelines provides guidance that a project would have a significant environmental impact. The following thresholds are based upon the Significance criteria described above and the State CEQA Guidelines. The proposed Project would have a significant impact on Air Quality if it would:

AQ-1: Conflict or obstruct the implementation of the applicable AQMP or applicable portions of the SIP;

AQ-2: Result in construction-related air quality impacts;

AQ-3: Result in a construction related increase in health risks related to diesel emissions;

AQ-4: Result in an increase in ozone precursor (ROG and NO_X) and PM10 emissions during Project operations;

AQ-5: Result in an impact on air quality from traffic-related CO Hot Spot analysis;

AQ-6: Expose sensitive receptors to substantial pollutant concentrations;

AQ-7: Create objectionable odors affecting a substantial number of people.

AQ-8: Conflict with the goals of AB 32.

To determine whether a project would result in a violation of an air quality standard or contribute substantially to an existing or projected violation, it is necessary to look at the quantitative emission thresholds adopted in the ICAPCD *CEQA Air Quality Handbook* (ICAPCD 2007). According to the handbook, ICAPCD has established emission thresholds for project construction and operations as described in the next section. The following are the significance criteria used to determine project impacts.

ICAPCD Emissions Criteria

Construction

The proposed project would result in a significant impact if:

- Daily construction emissions were to exceed the ICAPCD construction emissions thresholds for CO, ROG, NO_X, SO_X, or PM10. The ICAPCD significance thresholds for construction activities appear in Table 4.2-7.

Table 4.2-7. ICAPCD Daily Construction Emissions Thresholds

Criteria Pollutant	Pounds Per Day
PM10	150
ROG	75
NO_X	100
CO	550

Source: ICAPCD 2007b

Operations

The proposed project would result in a significant impact if:

- Daily operational emissions were to exceed the ICAPCD operational emissions thresholds for CO, ROG, NO_X, SO_X, or PM10 (the ICAPCD significance thresholds for operational emissions appear in Table 4.2-8); or
- Project-generated on-road traffic causes CO concentrations at study intersections to violate the CAAQS for either the 1- or 8-hour period. CAAQS for the 1- and 8-hour periods are 20 and 9 ppm, respectively.

Table 4.2-8. ICAPCD Daily Operational Emissions Thresholds

Criteria Pollutant	Tier 1 (Pounds Per Day)	Tier 2 (Pounds per Day)
NO_X and ROG	Less than 55	55 and greater
PM10 and SO_X	Less than 150	150 and greater
CO	Less than 550	550 and greater
Level of Significance	Less than Significant	Significant Impact

Source: ICAPCD 2007

The ICAPCD has not established thresholds of significance for PM2.5. For purposes of analysis, a threshold of 55 pounds per day, obtained from South Coast Air Quality Management District (SCAQMD), was used for this analysis (SCAQMD 2006).

ICAPCD has established two tiers of thresholds for project operations. Tier 1 projects are required to implement all standard mitigation measures. Tier 2 projects are required to implement all standard mitigation as well as all feasible discretionary mitigation measures. In addition, some residential and commercial projects may be required to implement offsite mitigation measures in order to reduce air quality impacts. All projects are required to abide by the offsite mitigation requirements as prescribed in Rule 310.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the types of population groups and the activities involved. CARB has identified the following people who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups are called *sensitive receptors* and include residential areas, hospitals, daycare facilities, eldercare facilities, schools, and parks.

There are no hospitals or nursing homes located within 1 mile of the Project site. Existing single-family homes are located directly to the west and northwest. The JW Oakley Elementary School is 0.7 mile northwest of the Project site, the Room to Grow School Age Program is 0.8 mile west, and the Alyce Gereaux and Guadalupe Parks are located 0.8 mile northwest and 1 mile west of the site, respectively.

Climate Change

Neither the State of California (e.g., CARB, OPR, or the Resources Agency the ICAPCD, the County of Imperial, nor the City of Brawley have yet to adopt thresholds of significance for GHG emissions analysis to be used in CEQA documents. Although CARB was initially going to develop such thresholds, at the current time CARB is leaving the development of thresholds to the air quality control and management districts throughout the state. Although ICAPCD has not yet adopted GHG thresholds, other air quality management agencies have either adopted or proposed thresholds (e.g., SCAQMD, Bay Area AQMD, and the San Joaquin Valley AQMD). Thus, it is likely that the ICAPCD will adopt such thresholds within the next 18 months. Therefore, thresholds have been developed by various air quality management agencies.

As with any environmental impact, lead agencies must determine what constitutes a significant impact. In the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a significant impact, individual lead agencies should undertake a project-by-project analysis to determine the GHG impacts of the project and whether such impacts are cumulatively considerable,.

On a state level, AB 32 identified that an acceptable level of GHG emissions in California in 2020 is 427 $MMTCO_2e$, which is the same as the 1990 GHG emissions level. This target level is approximately 15% less than current GHG emissions and about 28% less than projected 2020 BAU conditions. Individual projects are being assessed by their ability to help or hinder the state achieve AB 32 goals. Accordingly, this EIR uses the alternative CEQA compliance approach as follows:

- The Project reduces GHG emissions by 29% as compared with BAU emissions in accordance with statewide GHG emissions reductions goals as set forth by AB 32.

Individual projects, when considered in isolation, are not responsible for anthropogenic climate change, since an individual project's emissions are insufficient to change the radiative balance of the atmosphere. However, even small emissions from a single source contribute to the global GHG emissions total. Because climate change is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is a significant cumulative impact of human development and activity. Thus, the discussion below references analysis of cumulative contributions to a significant global impact. Thus, Project emissions, in isolation, are considered less than significant. However, climate change is a global cumulative impact resulting from worldwide GHG emissions, and the proper context for analysis of this issue is not a project's emissions in isolation, but rather as a contribution to cumulative GHG emissions. Therefore, for this analysis, Project-related GHG emissions and significance determinations are presented and discussed in a cumulative context. In addition, per OPR guidance, the Project's cumulative contribution to climate change are discussed in Chapter 7, "Cumulative Impacts."

4.2.3.3 Impacts and Mitigation Measures

Threshold AQ-1: Would the Project conflict or obstruct the implementation of the applicable AQMP or applicable portions of the SIP?

Discussion

The ICAPCD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the SSAB is in nonattainment (O_3 and PM10). The ICAPCD is required to prepare and maintain air quality plans to help achieve attainment status. For Imperial County, the applicable regional air quality plans are the most recent AQAP for ozone and the PM10 SIP. The ICAPCD *CEQA Air Quality Handbook* states that projects must discuss consistency with applicable regional plans. The ICAPCD prepared a 1991 AQAP in compliance with the requirements of the CAA, recognizing the population and economic growth within the air basin. The plan requires best available retrofit technology on specific types of stationary sources to reduce emissions.

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG), which includes Growth Management and Regional Mobility chapters that form the basis of the land use and transportation control portions of the AQAP. These documents are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQAP. Both the RCPG and AQAP are based, in part, on projections originating with County and City General Plans.

A Traffic Impact Study was prepared by LLG (2009) to evaluate the worst-case "With Overlay" Project scenario–generated impacts on the surrounding local roadway system. The study recommends mitigation measures, such as street improvements or traffic signals, for intersections and street segments that fall below an acceptable level of service (LOS) with Project implementation. The study allocates a proportionate share of the mitigation measures to the Project and includes traffic flow improvements, which are recognized transportation control measures in compliance with the AQAP.

The 1991 AQAP is outdated and, as discussed earlier, is currently being updated to reflect the land use plans of municipalities within the ICAPCD. The updated AQAP will be based on General Plan assumptions and forecasts. Therefore, while the AQAP is being updated, the best measure of the Project's consistency is to measure the Project against the goals and objectives of the most recent and applicable General Plan documents governing the Project site. As described in Section 4.8, "Land Use," the proposed Project would be consistent with the County of Imperial General Plan, which encourages a broad range of residential, commercial, and industrial land uses. The proposed Project is also consistent with the County Zoning Ordinance, which anticipates the conversion of the zone from agricultural and light-industrial uses to an urban use. The proposed Project site is within the Sphere of Influence of the City of Brawley and was identified by the City as planned for a large-scaled master planned development. As described in the Specific Plan consistency analysis, the proposed Project is consistent with the goals and objectives of the City of Brawley General Plan. The proposed Project would also be consistent with the goals and policies of SCAG's Regional Comprehensive Plan and Guide (RCPG). Therefore, the proposed Project is considered consistent with the AQAP, and impacts related to the inconsistency of emissions forecasts between the AQAP and the applicable General Plans are considered less than significant.

At the local level, air quality conditions are managed through the City's land use and development planning practices/regulations. Land use and development must generally comply with the Imperial County APCD's AQAP and other air quality rules and regulations. Implementation of the AQAP's strategies requires a cooperative partnership of governmental agencies at the federal, state, regional, and local level. The City of Brawley supports the plan through participation in voluntary programs and is responsible for implementing several plan measures. Examples of the City's responsibilities to AQAP measures are listed in Table 4.2-9 below.

Table 4.2-9. City Responsibility for AQAP Control Measures

AQAP Measure	AQAP Measure Name
L-01	Planning Compact Communities
L-02	Providing for Mixed Land Use
L-03	Balancing Jobs and Housing
L-04	Circulation Management

Source: ICAPCD 1991.

Impact Determination
The current AQAP is outdated and has not been updated as required to reflect the land use plans of municipalities within the ICAPCD. Therefore, the best measure of a project's consistency with the AQAP is whether or not it would achieve the underlying goals and objectives of the applicable General Plan. In this case, the proposed Project would be consistent with the County of Imperial General Plan and Zoning Ordinance, the City of Brawley General Plan and Service Area Plan, and the SCAG RCPG. Therefore, the proposed Project is considered consistent with the AQAP, and impacts related to the inconsistency of emissions forecasts between the AQAP and the applicable General Plan are considered less than significant.

Mitigation Measures
No mitigation is required.

Residual Impact
Impacts would be less than significant.

Threshold AQ-2: Would Project result in construction-related air quality impacts?

Discussion
Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of equipment in operation, and prevailing weather conditions. URBEMIS 2007 (version 9.2.4) was used to estimate construction emissions. URBEMIS defaults for construction worker and vendor trips were used. The URBEMIS model separates the construction process into various phases depending on the specifics of the project. For this analysis, construction was separated into four separate construction phases for each development phase.

Within each development phase, construction activities were broken down into separate construction components:

- Site preparation (e.g., grubbing and grading) includes emissions resulting from fugitive dust, soil haul truck trips, equipment exhaust, and worker commute exhaust.
- Asphalt paving of roadways and parking lots results in emissions from equipment exhaust, ROG emissions from asphalt paving, and worker commute exhaust.
- Building construction includes emissions from building equipment and worker commutes.
- Emissions from the application of architectural coatings include ROG emissions from paints as well as emissions from worker commutes.

Dust estimates assume that the project will comply with ICAPCD's Regulation XIII and *CEQA Air Quality Handbook* regarding project construction mitigation measures. A detailed inventory of construction equipment that would be used for the proposed Project was not provided; therefore, this analysis is based on anticipated construction equipment calculated by URBEMIS2007 that would be used during construction activities.

Emissions of pollutants generated during construction include both PM fugitive dust as well as equipment tailpipe emissions of ROG, CO NO_X, PM10, and PM2.5 that are generated during construction and are generally highest near the construction site. It was estimated that Project construction would occur between 2010 and 2020. To estimate fugitive dust emissions associated with site grading, it was assumed that a maximum of 25% of the total acreage for each phase would be disturbed on a single day.

Table 4.2-10 provides a summary of the emission estimates for the four construction phases of the proposed Project. URBEMIS2007 model outputs are provided in Appendix D of this EIR.

Table 4.2-10. Estimated Construction Emissions (Unmitigated)

	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO_2 (lbs/day)
Phase 1						
2010	12.61	46.06	124.52	20.46	5.55	8,436.21
2011	7.91	25.04	105.64	1.66	1.37	6,771.56
2012	54.41	23.52	100.59	0.24	1.27	6,852.84
2013	16.54	21.90	94.32	1.43	1.15	6,856.77
Phase 2						
No Overlay						
2013	14.39	46.35	141.80	26.82	7.00	11,553.76
2014	26.00	23.95	122.34	1.53	1.18	9,316.83
2015	69.67	22.03	114.46	1.45	1.11	9,321.91
With Overlay						
2013	13.18	48.18	126.93	26.82	7.00	10,826.71
2014	22.91	26.30	108.68	1.68	1.35	8,736.45
2015	60.46	24.06	101.93	1.59	1.26	8,740.79

	ROG (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO_2 (lbs/day)
Phase 3						
2015	7.56	33.17	77.68	23.60	6.07	7,938.12
2016	7.01	30.68	73.43	2.18	1.86	7,940.70
2017	72.60	28.48	70.65	2.01	1.71	8,033.69
Phase 4						
2018	5.09	21.89	42.50	8.21	2.32	5,287.32
2019	2.69	11.00	31.12	0.63	0.52	3,870.69
2020	25.12	10.29	29.99	0.58	0.46	3,902.58
Thresholds	*75*	*100*	*550*	*150*	*55*	-
Significant?	*No*	*No*	*No*	*No*	*No*	-

Source: URBEMIS2007, ICF Jones & Stokes 2009

ICAPCD requires all construction sites to implement all standard mitigation measures for construction and fugitive dust control. Project sites greater than 5 acres for non-residential and 10 acres for residential developments are required to implement discretionary mitigation measures as well. These measures were incorporated into the unmitigated analysis above. In addition, the project applicant shall develop and submit a dust control plan to the ICAPCD, per the requirements of Rule 801. As indicated in Table 4.2-10, the Project would not result in a significant impact on air quality.

In addition, the project is required to implement both Standard and Discretionary Mitigation Measures for project operations. Operations-related emissions and a list of mitigation measures are discussed under Threshold AQ-4 below.

Impact Determination

As shown in Table 4.2-10, emissions of ROG, NO_X, CO, PM10, and PM2.5 are below the significance thresholds for construction. Therefore, Project construction would not result in a significant impact on air quality, and this impact is considered less than significant.

Mitigation Measures

No mitigation measure is required.

Residual Impact

No mitigation measure is required.

Threshold AQ-3: Would the Project result in construction related increase in health risks related to diesel emissions?

Discussion
Diesel particulate matter (DPM) is considered a carcinogen by California regulatory agencies, and it is recognized that sensitive receptors exposed to high concentrations of DPM over many years could experience a significant cancer risk. An example of such a significant cancer risk would be people living for many years next to a heavily used railroad line. However, given its small scale and temporary nature, it is highly unlikely that offsite receptors downwind of temporary construction sites would experience any significant cancer risk directly associated with diesel emissions from construction of the Project.

Human health cancer risk assessment is typically based on a 70-year exposure period. Construction activities are sporadic, transitory, and short-term in nature; and, once construction activities have ceased, so too have emissions from construction activities. Because the duration of exposure to diesel exhaust during the temporary construction projects would be much shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks, construction of the proposed Project is not anticipated to result in an elevated cancer risk to exposed persons. Construction activities for the Project would continue for approximately 10 years.

Table 4.2-10 indicates that PM10 emissions from diesel equipment are relatively low and well below the ICAPCD daily threshold of 150 pounds per day. In addition, PM2.5 emissions from diesel equipment are well below the SCAQMD daily threshold that was used for this study. Consequently, the human health impact of diesel risks associated with construction activities is considered to be less than significant.

Impact Determination
PM10 and PM2.5 emissions from diesel equipment are relatively low and well below the SCAQMD daily thresholds. Consequently, the human health impact associated with construction activities is considered to be less than significant.

Mitigation Measures
No mitigation measure is required.

Residual Impact
Impacts would be less than significant.

Threshold AQ-4: Would the Project result in an increase in ozone precursor (ROG and NO_X) and PM10 emissions during Project operations?

Discussion
The main operational impacts associated with the Project would be associated with Project-related traffic. Minor impacts would be associated with area sources, such as space heating and landscaping.

To address whether the proposed Project would result in emissions that would violate any air quality standard or contribute substantially to an existing or proposed air quality violation, the emissions associated with Project-generated traffic were compared with the Imperial County significance criteria.

According to the Traffic Impact Analysis (LLG 2009), the Project-generated daily traffic is estimated to be 29,124 total trips by Project completion. The traffic analysis estimated that approximately 1,001 AM peak hour and 2,625 PM peak hour trips would be generated from the Project.

URBEMIS2007 was used to estimate emissions associated with Project operations. Operational emissions were modeled for full buildout year 2020 assuming that the Project would be completed and operational by then. Emissions associated with landscaping and energy use were also included in the area source emission estimates. For purposes of applying the URBEMIS 2007 model, it was assumed that the proposed Project would comply with Title 24 of the California Code of Regulations established by the CEC regarding energy conservation standards.

The URBEMIS2007 model outputs are presented in Appendix D of this EIR. Table 4.2-11 presents the total operational emissions anticipated from the proposed Project before mitigation.

Table 4.2-11. Operational Emissions (Unmitigated)

	Maximum Daily Emissions (pounds)					
	ROG	**NO_X**	**CO**	**PM10**	**PM2.5**	**CO_2**
Phase 1 (2013)						
Area Source Emissions	12	6	20	2	2	7,051
Vehicular Emissions	103	164	1,264	141	28	88,525
Total Emissions	**115**	**170**	**1,272**	**144**	**31**	**95,575**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*no*	*no*	-
Phase 2 (2015)						
Area Source Emissions	82	16	136	20	19	20,145
Vehicular Emissions	126	184	1,463	189	37	119,736
Total Emissions	**208**	**200**	**1,599**	**209**	**56**	**139,881**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*yes*	*yes*	-
Phase 3 (2017)						
Area Source Emissions	204	29	339	50	48	36,474
Vehicular Emissions	153	201	1,685	248	49	158,454
Total Emissions	**357**	**230**	**2,024**	**298**	**97**	**194,928**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*yes*	*yes*	-
Phase 4 (2020)						
Area Source Emissions	243	32	405	60	58	40,952
Vehicular Emissions	137	165	1,454	253	49	162,518

	Maximum Daily Emissions (pounds)					
	ROG	NO_X	CO	PM10	PM2.5	CO_2
Total Emissions	**380**	**197**	**1,859**	**313**	**107**	**203,469**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*yes*	*yes*	-

Daily emissions are the maximum of summer and winter daily emissions.

Total emissions are the maximum daily emissions—summer or winter.

Source: URBEMIS2007, ICF Jones & Stokes 2009

Based on emissions estimates for operation of the proposed Project, emissions would exceed the significance criteria for ROG, NO_X, CO, PM10, and PM2.5. Therefore, operation of the proposed Project would result in a significant air quality impact.

Impact Determination

Impact AQ-1: Based on emissions estimates for operation of the proposed Project, emissions would exceed the significance criteria for ROG, NO_X, CO, PM10, and PM2.5. Therefore, operation of the proposed Project would result in a significant air quality impact.

Mitigation Measures

The following mitigation measures would help to reduce the impact of Project operations.

MM AQ-1: Building and Site Design Measures. The ICAPCD *CEQA Air Quality Handbook's* standard mitigation recommendations for residential, commercial, and industrial projects, including the following site design and energy efficiency standards, shall be implemented as determined feasible. If the applicant/developer asserts that a measure is infeasible, the developer must demonstrate through substantial evidence the infeasibility of the measure and then shall select an alternative measure to the satisfaction of the lead and applicable responsible agency(ies).

Standard Site Design Measures for Residential:

- Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel.
- Allocate easements or land dedications for bikeways and pedestrian walkways.
- Provide continuous sidewalks separated from the roadway by landscaping and on-street parking. Adequate lighting for sidewalks must be provided, along with crosswalks at intersections.
- Bicycle storage at apartment complexes or condos without garages.

Standard Energy Efficiency Measures

- Measures which meet mandatory, prescriptive and/or performance measures as required by Title 24.

Standard Site Design Measures for Commercial:

- Provide on-site bicycle parking.

- Provide on-site eating, refrigeration and food vending facilities to reduce lunchtime trips.
- Provide shower and locker facilities to encourage employees to bike and/or walk to work.
- Provide for paving a minimum of 100 feet from the property line for commercial driveways that access County paved roads as per County Standard Commercial Driveway Detail 410B (formerly SW-131A).

Standard Energy Efficiency Measures for Residential, Commercial and Industrial:

- Measures which meet mandatory, prescriptive and/or performance measures as required by Title 24.

Discretionary Site Design Measures for Residential:

- If the project is located on an established transit route, improve public transit accessibility by providing transit turnouts with direct pedestrian access to project.
- For bus service within a ¼ mile of the project provide bus stop improvements such as shelters, route information, benches and lighting.
- Increase street tree planting.
- Outdoor electrical outlets to encourage the use of electric appliances and tools.
- Provide bikeway lanes and/or link new comparable bikeway lanes to already existing lanes.
- Secure on-site bicycle parking for multi-family residential developments.
- Increase the number of bicycle routes/lanes.
- Synchronize traffic lights on streets impacted by development.

Discretionary Energy Efficiency Measures for Residential:

- Use roof material with solar reflectance value meeting the EPA/DOE Energy Star rating to reduce summer cooling needs.
- Use high efficiency gas or solar water heaters.
- Orient building in north-south direction, where feasible.
- Use built-in energy efficient appliances.
- Use double-paned windows.
- Use low energy street lighting (i.e., sodium).
- Use energy efficient interior lighting.
- Use low energy traffic signals (i.e., light emitting diode).
- Install door sweeps and weather stripping if more efficient doors and windows are not available.

Discretionary Site Design Measures for Commercial:

- Increase street tree planting.
- Shade tree planting in parking lots to reduce evaporative emissions from parked vehicles.

- Increase number of bicycle routes/lanes.
- If the project is located on an established transit route, improve public transit accessibility by providing transit turnouts with direct pedestrian access to protect or improve transit stop amenities.
- For bus service within a ¼ mile of the project provide bus stop improvements such as shelters, route information, benches and lighting
- Implement on-site circulation design elements in parking lots to reduce vehicle queuing and improve the pedestrian environment.
- Provide pedestrian signalization and signage to improve pedestrian safety.
- Synchronize traffic lights on streets impacted by development

Discretionary Energy Efficiency Measures for Commercial

- Use roof material with a solar reflectance value meeting the EPA/DOE Energy Star rating to reduce summer cooling needs.
- Use built-in energy efficient appliances, where applicable.
- Use double-paned windows.
- Use low energy parking lot and street lights (i.e. sodium).
- Use energy efficient interior lighting.
- Use low energy traffic signals (i.e. light emitting diode).
- Install door sweeps and weather stripping if more efficient doors and windows are not available.
- Install high efficiency gas/electric space heating.

The proposed Project will require implementation of the above mitigation measures. Emission reduction efficiency for each feasible standard and discretionary measures were used to determine the level of mitigated emissions. Mitigation measures were first applied within URBEMIS to reduce operational emissions. The following mitigation measures were applied in URBEMIS:

- 100% of residential heating is on natural gas
- 100% of fireplaces are natural gas (no wood stoves or fireplaces)
- Residential and commercial land uses exceed Title 24 by 15%
- 20% of landscape equipment is electric with outlets at front and rear of residences and commercial sites

The above mitigation would not be sufficient to reduce operational emissions to a level below significance. Therefore, additional mitigation is required. The ICAPCD does not provide guidance on quantifying emission reductions for the Standard and Site Design Mitigation Measures presented above. However, the Sacramento Metropolitan Air Quality Management District's (SMAQMD) *Recommended Guidance for Land Use Emission Reductions* does provide guidance for quantifying operational mitigation measures. These mitigation measures were quantified outside of the URBEMIS model using the mitigated operational emissions from URBEMIS. It was assumed that if the Project were to apply all of the applicable mitigation measures, operational emissions would be reduced by approximately 42%.

Table 4.2-12 presents the results of applying the emission reductions. Detailed emission reduction calculations are presented in Appendix D of this EIR.

Table 4.2-12. Operational Emissions (Mitigated)

	Maximum Daily Emissions (pounds)					
	ROG	**NO_X**	**CO**	**PM10**	**PM2.5**	**CO_2**
Phase 1 (2013)						
Area Source Emissions	3	3	4	0	0	4,171
Vehicular Emissions	60	95	735	82	16	51,425
Total Emissions	**63**	**98**	**738**	**82**	**17**	**55,596**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*no*	*no*	-
Phase 2 (2015)						
Area Source Emissions	18	11	15	0	0	11,353
Vehicular Emissions	73	107	850	110	22	69,557
Total Emissions	**92**	**118**	**865**	**110**	**22**	**80,909**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*no*	*no*	-
Phase 3 (2017)						
Area Source Emissions	41	16	17	0	0	20,335
Vehicular Emissions	89	117	979	144	28	92,049
Total Emissions	**130**	**133**	**996**	**145**	**29**	**112,384**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*no*	*no*	-
Phase 4 (2020)						
Area Source Emissions	51	18	18	0	0	22,869
Vehicular Emissions	80	96	845	147	28	94,409
Total Emissions	**130**	**114**	**862**	**147**	**29**	**117,278**
Significance Criteria	*55*	*55*	*550*	*150*	*55*	-
Significant?	*yes*	*yes*	*yes*	*no*	*no*	-

Daily emissions are the maximum of summer and winter daily emissions.

Total emissions are the maximum daily emissions—summer or winter. Therefore, total emissions presented may not add up.

Source: URBEMIS2007, SMAQMD 2007, ICF Jones & Stokes 2009

Emission reduction measures would reduce operational emissions of PM10 below the threshold of significance; however, emissions of CO, ROG, and NO_X still exceed the threshold of significance.

MM AQ-2: Operational Development Fee. For the impacts remaining after standard and discretionary mitigation measures, 100% mitigation may be satisfied by means of compliance with Rule 310—Operational Development Fee.

As discussed earlier, the Project is subject to ICACPD Rule 310 (Operational Development Fee). According to Rule 310, all projects have the option to develop an Alternative Emission Reduction Plan, provide offsite mitigation, pay the operational development fee, or a combination of both. As such, compliance with Rule 310 will reduce operational emissions through the purchase of offsets. The ICACPD states that compliance with Rule 310 reduces operational impacts to less-than-significant levels after implementation of feasible and discretionary mitigation. Compliance with Rule 310 would reduce all air quality impacts to less than significant.

Residual Impact

With implementation of mitigation measures MM AQ-1 and MM AQ-2, this impact would be considered less than significant.

Threshold AQ-5: Would the Project result in an impact on air quality from traffic-related CO Hot Spot analysis?

Discussion

Project-generated vehicle trips would increase traffic volumes at roadway intersections in the proposed Project vicinity once the Project becomes operational (following completion of the first phase of Project construction). During periods of near-calm winds, heavily congested intersections can produce elevated levels of CO that could potentially impact nearby sensitive receptors. Therefore, a CO hot spot analysis was conducted to determine whether the proposed Project would contribute to a violation of the ambient air quality standards for CO at any local intersections.

The Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997) was followed to determine whether a CO hot spot is likely to form due to Project-generated traffic. In accordance with the Protocol, CO hot spots are typically evaluated when (a) the LOS of an intersection decreases to a LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection. In general, CO hot spots would be anticipated near affected intersections because operation of vehicles in the vicinity of congested intersections involves vehicle stopping and idling for extended periods.

Four intersections were selected for analysis because they were calculated to operate at LOS E or worse under proposed Project conditions (LLG 2009.) To provide a worst-case analysis, CO concentrations were modeled at sidewalk locations adjacent to these study intersections. The four selected intersections are:

- Best Avenue and State Route 78
- South Best Avenue and I Street
- South Best Avenue and Malan Street

- Wildcat Drive and State Route 111

The analysis was conducted using the CALINE4 line source dispersion model. Input parameters include traffic volumes, CO emission factors, receptor locations, meteorological conditions, and background concentrations. The evening peak-hour traffic volumes were modeled. The EMFAC2007 emission rate program was used to estimate CO emission factors in year 2020 (EMFAC2007 model outputs are presented in Appendix D of this EIR).

Meteorological inputs to the CALINE4 model were determined using methodology recommended in the CO Protocol (Garza et al. 1997). The meteorological conditions used in the modeling represent a calm winter period. The worst-case wind angles option was used to determine a worst-case concentration for each receptor.

A background concentration of 14.3 ppm was added to the modeled 1-hour values to account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. A background concentration of 2.59 ppm was added to the modeled 8-hour values. All background concentration data were taken from the monitoring data provided by CARB (CARB 2009a) and EPA (EPA 2009a).

Table 4.2-13 presents maximum 1- and 8-hour CO concentrations predicted at locations 3 meters from the edge of the intersection in all directions. The CALINE4 model outputs are presented in Appendix D of this EIR.

Table 4.2-13. CO Modeling Concentrations (ppm)

Intersection	1-hour	8-hour
Best Avenue/ SR-78	15.3	3.01
S. Best Avenue/ I Street	15.2	3.22
S. Best Avenue/Malan Street	15.4	3.36
Wildcat Drive/SR-111	15.2	3.22
CAAQS Standard	20.0	9.0
Significant?	*No*	*No*

Note: Background concentrations of 14.3 and 2.59 ppm were added to the modeling 1- and 8-hour results, respectively.

EMFAC2007 and CALINE4 model outputs are presented in Appendix D of this EIR.

The results show that under Project conditions, the state 1- and 8- hour standards of 20 and 9 ppm, respectively, would not be exceeded at any of the four intersections. Therefore, the Proposed Project is not anticipated to significantly contribute to CO ambient concentration impacts.

Impact Determination

The Proposed Project is not anticipated to significantly contribute to CO ambient concentration impacts. Therefore, this impact is less than significant.

Mitigation Measures
No mitigation measure is required.

Residual Impact
Impacts would be less than significant.

Threshold AQ-6: Would the Project expose sensitive receptors to substantial pollutant concentrations?

Discussion
CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005) provides recommendations for the siting of new sensitive land uses (including residences) near a major source of emissions. CARB has performed several air pollution studies, many focused on children. A number of studies identify an association between adverse non-cancer health effects and living or attending school near heavily traveled roadways. In terms of vehicle traffic, there are three carcinogenic TACs that constitute the majority of the known health risk—DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000 to 20,000 per day), DPM represents about 70% of the potential cancer risk from the vehicle traffic.

The proposed Project would place sensitive land uses adjacent to SR-78, which runs east–west immediately north of the Project site, and SR-111, which runs north–south immediately east of the Project site. Daily traffic volume on SR-78 is approximately 18,200 average annual daily traffic (AADT), with truck traffic comprising approximately 1,400 AADTs (Caltrans 2009). Peak hourly traffic is approximately 1,550 trips. The *Air Quality and Land Use Handbook* recommends avoiding the siting of sensitive land uses within 500 feet of a freeway, an urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Since Project roadway volumes do not meet the criteria, no further analysis is required, and this impact is considered to be less than significant. Further, as discussed under Threshold AQ-5, the Project would not contribute to CO impacts at nearby intersections.

Land uses directly west and northwest of the Project site consist of a mixture of commercial, light industrial, and residential land uses. The remainder of the Project site is surrounded by agricultural land uses. In recognition of the role of agriculture in the County, the County Board of Supervisors has adopted a Right-to-Farm Ordinance. This ordinance requires a disclosure to owners and purchasers of property near agricultural lands or operations, or areas zoned for agricultural purposes. The disclosure advises people that discomfort and inconvenience from odors, fumes, dust, smoke, and chemicals resulting from conforming and accepted agricultural operations are a normal and necessary aspect of living in agricultural areas of the County. Exposure to sensitive receptors would be minimal. Therefore, this impact is considered to be less than significant.

Impact Determination
Exposure to sensitive receptors would be minimal. Therefore, this impact is considered to be less than significant.

Mitigation Measures
No mitigation measure is required.

Residual Impact
Impacts would be less than significant.

Threshold AQ-7: Would the Project create objectionable odors affecting a substantial number of people?

Discussion
Construction of the proposed Project would be staggered over an approximately 10-year period. During this time, residents living within the completed phases would be exposed to objectionable odors. Implementation of ICAPCD standard and discretionary mitigation measures would minimize exposure to odors.

The Project would place receptors near existing agricultural areas. In recognition of the role of agriculture in the County, the Board of Supervisors has adopted a Right-to-Farm Ordinance. This ordinance requires a disclosure to owners and purchasers of property near agricultural lands or operations, or areas zoned for agricultural purposes. The disclosure advises people that discomfort and inconvenience from odors, fumes, dust, smoke, and chemicals resulting from conforming and accepted agricultural operations are a normal and necessary aspect of living in agricultural areas of the County. Therefore, the impact is less than significant.

Impact Determination
Receptors would be exposed to odors from Project construction as well as from proximity to existing agricultural areas. ICAPCD construction mitigation measures would help to minimize exposure to construction odors. Disclosure in accordance with the Right-to-Farm Ordinance advises people that discomfort and inconvenience from odors, fumes, dust, smoke, and chemicals resulting from conforming and accepted agricultural operations are a normal and necessary aspect of living in agricultural areas of the County. Therefore, the impact is less than significant.

Mitigation Measures
No mitigation is required.

Residual Impact
Impacts would be less than significant.

Threshold AQ-8: Would the Project conflict with the goals of AB 32?

Discussion
Given the overwhelming scope of global climate change, it is not anticipated that a single development Project would have an individually discernable effect on global climate change (i.e., that any increase in global temperature or sea level could be attributed to the emissions resulting from a single project). Rather, it is more appropriate to conclude that the proposed Project GHG emissions will combine with emissions across California, the U.S., and the globe to cumulatively contribute to global climate change. The analysis presented here treats Project GHG emissions as cumulative contributions to a significant global impact. Additional discussion of cumulative impacts is provided in Chapter 7, "Cumulative Impacts."

On a state level, AB 32 identified the acceptable level of GHG emissions in California in 2020 as 427 MMT of CO_2e, which is the same as the 1990 GHG emissions level, is approximately 12% less than the current level (480 MMT CO_2e in 2004), and is approximately 29% less than 2020 BAU conditions (596 MMT CO_2e). To achieve these GHG reductions, there will have to be widespread reductions of GHG emissions across California, including within the City of Brawley. Some of those reductions will need to come in the form of changes in vehicle emissions and mileage, changes in the sources of electricity, and increases in energy efficiency by existing facilities, as well as other measures. The remainder of the necessary GHG reductions will need to come from requiring new facility development to have lower carbon intensity than BAU conditions. Therefore, as mentioned above, this analysis uses a threshold of significance that is in conformance with the state's goals.

The California Resources Agency, with input from OPR and the public, recently adopted revisions to the State CEQA Guidelines that address GHG impacts in the context of CEQA documents. While the new State CEQA Guidelines, which became effective in March 2010, do not specifically establish significance thresholds, they do describe some of the factors that agencies should consider in determining whether GHG impacts are significant. Neither the State of California (e.g., CARB, OPR, or the Resources Agency the ICAPCD, the County of Imperial, nor the City of Brawley have yet to adopt thresholds of significance for GHG emissions analysis to be used in CEQA documents. However, the Attorney General has contended in a letter to other agencies that "the lack of official thresholds and guidelines does not absolve the [Agency] from the obligation under CEQA to determine the significance of, or adopt feasible mitigation for, the anticipated GHG emissions [for a project]." This analysis has followed the most currently available recommendations for assessing GHG emissions in the CEQA process and determining their significance. This EIR is based on estimates of GHG emissions resulting from the construction (Table 4.2-14) and operations (Table 4.2-15) of the Project. These emissions are discussed in the context of projected California emissions in the absence of any GHG reducing activities (BAU) and in the context of already adopted state measures that will act to reduce GHG emissions in the future. Construction and operation emissions are discussed separately below.

Table 4.2-14. Construction-related GHG Emissions (metric tons per year).

	CO_2e
Phase 1	
2010	242
2011	806
2012	813
2013	69
Phase 2	
2013	870
2014	1,100
2015	651
Phase 3	
2015	273
2016	949
2017	945
Phase 4	
2018	449
2019	462
2020	241
Total	***7,869***

Construction

Table 4.2-14 lists the annual GHG emissions from Project construction off-road diesel equipment and on-road worker commutes associated with the total emissions resulting from construction activities. Construction of the Project results in 7,869 metric tons of CO_2e. The primary emissions occur as CO_2 from gasoline and diesel combustion, with more limited vehicle tailpipe emissions of nitrous oxide and methane as well as other GHG emissions related to vehicle cooling systems.

Construction period GHG emissions were calculated using the URBEMIS2007 model. As discussed above, construction of the four separate phases would be staggered over an approximately 10-year period. URBEMIS does not quantify CH_4 and N_2O emissions, although these two pollutants are known to be emitted from construction equipment. CH_4 and N_2O emissions associated with construction emissions from off-road equipment were calculated using emission factors from the Climate Registry General Reporting Protocol Version 3.1 diesel fuel emission estimates (CCAR 2009). The Climate Registry emission factor for CO_2 is 10.15 kilograms (kg) of CO_2 per gallon of diesel fuel. Construction equipment using diesel fuel emits an estimated 0.58 gram of CH_4 per gallon and 0.26 gram N_2O per gallon (CCAR

2009). The ratios of CH_4 and N_2O to CO_2 per gallon of diesel fuel are 0.00006 and 0.0003, respectively. CO_2 emissions for each year were multiplied by these ratios to estimate CH_4 and N_2O emissions from construction equipment operation. These emissions were then converted to CO_2e using the GWPs of each gas.

Existing CARB regulations (13 CCR 2480/2485), which limit idling of diesel-fueled commercial motor vehicles, would help to limit GHG emissions associated with Project-related construction vehicles. In addition, CARB's proposed Early Action Measures (pursuant to the California Global Warming Solutions Act of 2006) include other emission reduction measures for diesel trucks and diesel off-road equipment. CARB reviewed Early Action Measures in early 2010, and equipment used for construction of the Project after 2010 could be subject to these requirements. Once such measures go into effect, construction contractors would be subject to these requirements. Nevertheless, Project-specific measures to further reduce GHG emissions during construction are prescribed below.

Operations

Operation of the proposed Project is expected to result in increased emissions of GHGs, largely due to motor vehicle trips, energy consumption, and water consumption. As discussed previously, increased emissions of GHGs would contribute to global warming and the adverse global environmental effects thereof. Increased GHG emissions could also potentially conflict with the requirement of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. Motor vehicle GHG emissions result from gasoline and diesel fuel combustion. Increased energy and water consumption result in increased GHG emissions associated with the burning of fossils fuels for energy production, and the conveyance of water throughout the state.

Emission reduction measures targeting sources of GHG emissions called for in AB 32 will likely be adopted in the near future, although no measures have yet been adopted, and it is unknown at this time if these measures will apply to the proposed Project. In addition, CARB has not yet developed the de minimis criteria establishing the level of GHG emissions that would not be subject to the emission reduction measures. Furthermore, most of the mitigation measures do not address GHG emissions associated with vehicle miles traveled, and water and energy consumption related to land use development projects.

The degree of future impacts and applicability, feasibility, and success of future mitigation measures cannot be adequately known for the proposed Project at this time. Declaring an impact significant or not significant implies some knowledge of incremental effects that is not currently available. To determine whether the proposed Project would contribute to a significant impact associated with global climate change, considering that no quantifiable numeric threshold exists for such an impact, would be speculative.

The construction schedule provided by the Project applicant indicates that construction activities will be completed by 2020. Therefore, the full buildout year is assumed to be 2020. GHG emissions from full Project buildout operational emissions in 2020 include the following:

- mobile source emissions;
- area source emissions resulting from stationary sources and from landscaping activities of commercial, residential, and recreational facilities;

- emissions resulting from commercial and residential building electricity and natural gas consumption; and
- energy consumption related to water supply and distribution.

GHG emissions in 2020 associated with operation of the Project are shown in Table 4.2-15. Total annual GHG emissions are approximately 48,321 metric tons of CO_2e: a net increase of approximately 45,437 metric tons of CO_2e over existing conditions. Emissions are discussed by sector below.

Table 4.2-15. GHG Emissions of Existing and 2020 Proposed Project (metric tons per year)

	Annual Metric Tons				
	CO_2	CH_4	N_2O	SF_6	CO_2e
Existing	*2,625*	*0.04*	*0.04*	*0.01*	*2,884*
Proposed Project					
Electricity	13,625	0.19	0.19	0.003	13,769
Natural Gas	3,499	0.33	0.01	-	3,601
Area Sources	153	-	-	-	153
Mobile Sources	26,907	1.77	1.94	-	27,546
Water Supply and Treatment	2,960	0.04	0.04	0.01	3,252
Total	*47,143*	*2.33*	*2.18*	*0.02*	*48,321*
Increase over Existing	**+44,518**	**+2.29**	**+2.15**	**+0.005**	**+45,437**

Area and Mobile Source CO_2 emissions from URBEMIS2007. GHG emission calculations and URBEMIS outputs are presented in Appendix D of this EIR.

Mobile Sources

Mobile source GHG emissions were calculated according to the methodology in the CCAR General Reporting Protocol (2009). CO_2 emissions were based on trip generation rates supplied by the traffic engineer (LLG 2009) and subsequent vehicle miles travelled (VMT) as calculated by the URBEMIS2007 model. CO_2 calculations within the model are based on an assumed default vehicle speed of 40 mph within the study area using year 2020 Imperial County vehicle fleet mix.

Mobile source CH_4 emissions were calculated using the EMFAC2007 model with the same vehicle fleet profile and conditions assumed in the URBEMIS simulations. Calculated CH_4 emission factors were generated assuming 2020 Imperial County vehicle fleet mix operating at an average vehicle speed of 40 mph. The EMFAC2007 model does not generate emission factors for N_2O. Thus, N_2O emissions were calculated based on EMFAC-produced estimates of miles traveled per gallon of fuel by vehicle type for gasoline and diesel for a year 2020 vehicle fleet mix operating at 40 mph. Mobile source GHG emissions represent a conservative estimate of Project-related emissions because the emission factors produced by EMFAC2007 do not include the reductions in mobile-source GHG emissions that would result from implementation of AB 1493 or the Low Carbon Fuel Standard (LCFS) program.

Electricity

GHG emissions generated from electricity consumption were calculated according to the methodology in the CCAR General Reporting Protocol (2009). Electricity consumption for residential land uses was calculated based on electricity consumption rates in the Residential End Consumption Survey (EIA 2005). Electricity consumption from commercial land uses was calculated based on electricity consumption rates in the California Energy Commission Commercial End Use Survey (CEC 2006b). The Project would receive electricity from the Imperial Irrigation District (IID). The CO_2 emission factor for the IID, obtained from the Climate Action Registry (2010), is a reported 1270.9 pounds of CO_2 per megawatt-hour (MWh) for the year 2008. IID's electricity emissions factor for 2008 is conservative when considering that AB 1078 requires that all electric utilities increase their renewable energy resources by 1% per year until 20% of retail sales are procured from renewable energy resources. Although compliance with AB 1078 would result in a lower emissions factor for IID electricity in the future, the 2008 emission factor was used to provide a worst-case scenario of indirect emissions from electricity consumption for the proposed Project. CH_4 and N_2O emission factors were obtained from the CCAR General Reporting Protocol (2009). CH_4 and N_2O emissions per MWh of electricity generated were assumed to remain constant through 2020. Electricity transmission lines release SF_6 over time. Emissions of SF_6 were quantified by apportioning total SF_6 emissions for California by the total energy production in California in 2004 (CARB 2007).

Natural Gas

GHG emissions generated from natural gas consumption were calculated according to the methodology in the CCAR General Reporting Protocol (2009). Natural gas consumption for residential land uses was calculated based on natural gas consumption rates in the Residential End Consumption Survey (EIA 2005). Natural gas consumption from commercial/retail land uses was calculated based on natural gas consumption rates in the California Energy Commission Commercial End Use Survey (CEC 2006b). Natural gas CO_2, N_2O, and CH_4 emissions were calculated using emission factors obtained from the CCAR General Reporting Protocol (2009).

Water Consumption

The conveyance, treatment, and distribution of water as well as the treatment of wastewater requires the consumption of electricity. According to the Rancho Porter Water Supply Assessment, the proposed land uses will result in a net-decrease in water consumption rates with implementation of the proposed Project (DDE 2008). However, outdoor water uses generate less GHG emissions because they do not require wastewater treatment after consumption. It was assumed that all current water uses for the proposed Project occur outdoors while all of the water uses associated with the proposed Project would occur indoors.

Current agricultural land uses consume approximately 409,749,848.4 gallons per year. The proposed Project is expected to consume an estimated 394,341,985 gallons per year. Water use electricity demand was calculated using the *Outdoor* electricity consumption factor per unit for existing (BAU) land uses. The *Indoor* electricity consumption per unit of water use was used to quantify GHG emissions associated with the proposed Project. GHG emissions from electricity consumption were obtained using the same methodology as described above for electricity.

Implementation of the proposed Project would result in a net increase in GHG over existing conditions, as increased population and commercial and office space would result in more vehicle trips and energy

consumption within the Project area. Assuming a 2020 buildout year, the proposed Project would result in approximate 48,321 metric tons of CO_2e per year. This would represent an approximately 45,437 metric ton per year increase over BAU conditions.

To put Project-buildout GHG emissions into context, California as a whole is responsible for almost 500 MMT of GHG emissions, which represents approximately 2% of global GHG emissions. Project buildout would result in emissions that are approximately 0.01% of California's current (2004) emissions. This analysis did not quantify the avoided GHG emissions attributable to mitigation measures or incorporated design features of the Project.

Numerous design features of the Project will act to reduce GHG emissions. The Project will include a diverse network of pedestrian and bicycle amenities to provide residents an alternative to driving. On-street parking along residential roads will create a buffer against vehicle traffic, promoting pedestrian safety and walkability. Project design will include sidewalks and linkage trails to connect parks, residences, shops, and parking facilities. Project design may also incorporate "traffic calming" features by including raised crosswalks and speed humps, which increase the appeal of walking by reducing vehicle speeds and increasing pedestrian safety. The Project also includes Class I and II bike lanes, bicycle parking facilities, and linkages to existing City and County bike lanes and routes. Each of these measures may reduce motor vehicle trips and miles traveled.

Additionally, already adopted state measures aimed at reducing GHG emissions, such as AB 1493 and the LCFS, will act to reduce GHG emissions in the Project area. Legislation or regulation enacted at the national level may also be important in achieving GHG emissions reductions in the Project area by 2020, the year of analysis. However, without a quantitative analysis of enforceable mitigation measures, design features, and state measures, it is impossible to demonstrate if the proposed Project does its fair share to achieve the goals set forth in AB 32.

The above analysis makes assumptions that may or may not be accurate. For example, trip distance assumptions assume default trip lengths for an urban project area, which may or may not be accurate considering the Project is at the fringe of an existing urbanized area. Mixed-use neighborhoods lead to reduced vehicle trip length: a point that may or may not be accounted for in current traffic impact studies and/or URBEMIS model runs. The proposed Project is a mixed-use development which will provide commercial, retail, and office space on site alongside residential units. The Project proposes both single- and multi-family development of a higher density than much of the surrounding area, which is predominately low density. The Traffic Impact Analysis provides for mixed-use and pass-by trip reductions because of Project design, and URBEMIS calculated vehicle miles traveled based on default trip length assumptions. While the Project site is at the edge of an established City, individual driving habits are not known. It is entirely possible that developing on the edge of the established city will lead to increased vehicle trips and miles traveled, as future residents may choose to live here for reasons other than commute time. Inversely, it is also possible that the Project will in fact reduce trips and trip lengths for some residents as future residents may locate here to be closer to the work and commercial opportunities both within the specific plan area as well as within the eastern portion of the City of Brawley.

Impact Determination

Impact AQ-2: The proposed Project would contribute an estimated 48,321 metric tons of GHG emissions: a net increase of 45,437 metric tons over existing conditions. This would result in a significant cumulative impact.

Mitigation Measures

A variety of measures are provided in various sources, including the California Attorney General's recommended measures, the Center for Biological Diversity's recommended measures, and the California Air Pollution Control Officers Association's (CAPCOA's) recommended measures. These measures are attached in Appendix D of this EIR (Department of Justice 2008, Center for Biological Diversity 2007, CAPCOA 2008). The Project design already includes various elements that are consistent with the above measures, including bicycle parking, a pedestrian network, suburban mixed-use development with transit access, accessibility to bike paths and pedestrian facilities, and traffic calming to reduce vehicle speeds and promote safe pedestrian walkways. Mitigation measure MM AQ-1 will help to reduce operational emissions from mobile and area sources (see Table 4.2-11). Additional measures pertaining to building efficiency, water use efficiency, transportation, land use, and solid waste measures are recommended in order to reduce GHG emissions associated with the proposed Project. The most feasible mitigation measures are provided below.

MM AQ-3: GHG Reduction Measures. GHG Mitigation Measures listed below shall be incorporated into Project design, where feasible, to reduce GHG emissions associated with Project construction and operation. If the applicant/developer asserts that a measure is infeasible, the developer must demonstrate through substantial evidence the infeasibility of the measure and then shall select an alternative measure to the satisfaction of the lead and applicable responsible agency(ies). The developer/owner/applicant shall:

Construction-Related GHG Measures

- Require the use Tier 3 engines on construction equipment, or if demonstrated to be unavailable, a minimum of Tier 2.
- Require that engines in all off-road construction equipment must be less than or equal to 10 years old or have the equivalent emissions of an engine 10 years old or newer.
- Require diesel particulate filters and diesel oxidation catalyst on applicable pieces of equipment.
- Promote the use of alternative fuel technologies.
- Recycle construction waste, including waste and unused materials generated during the construction and building process and existing waste and unused materials on site prior to construction. Recycling options may include the use of onsite spoils and bulk site clearing materials for existing project needs—such as backfill, mulch, erosion and sedimentation control—donation of materials to charitable organizations, or exportation for use in other local construction projects in the Project area.
- Require that building or construction materials that are not recyclable be hauled off site by local construction haulers or waste disposal services or be removed to the nearest waste disposal facility to minimize emissions generated from transporting waste. Preference shall be given to local construction haulers or waste disposal services, if available.
- Require builders to use recycled building materials, such as timber beams, barn siding, used brick, used concrete, etc.
- Use low volatile organic compound finishes, including, but not limited to, those found in paints and coatings, adhesives and sealants, carpet and composite woods.
- Avoid the following materials whenever possible: PVC, wood treated with copper chromium arsenate, and Persistent Bioaccumulative Toxic chemicals such as mercury, lead, or cadmium

found in products such as some paints, varnishes, caulks, electrical switches and thermostats, fluorescent bulbs, solders, and vinyl.

- Give preference to sustainable and environmentally friendly building materials.
- Give preference to building materials and products that are locally and regionally extracted and manufactured.
- Use roofing and paving materials and systems that maximize efficient energy use and natural rainwater infiltration.

Operations-Related GHG Management Measures

Transportation: The following Project design features are incorporated into the Project to reduce GHG emissions generated from vehicular transportation.

- Install high-speed communication technology to encourage telecommuting and working from home.
- Provide convenient pathways through parking for pedestrians, site parking off street, and provide shade trees for parking.
- Provide an adequate supply of parking to minimize parking search times for vehicle trips.
- Provide preferential parking for alternative fueled and low-emission vehicles.

Building Design: Require buildings to exceed by at least 15% efficiency what is currently required in Title 24 Standards (24 CCR Part 6; effective revision October 1, 2005). To meet this efficiency requirement, the developer may select from the following, but not be limited to, list of possible items. An energy audit may be conducted in order to verify that this requirement is met. Consideration shall be given for the best combination of energy-efficient strategies, including passive solar heating, cooling, and daylighting of interior spaces and minimizing summer sun exposure.

- Install efficient HVAC system with refrigerant with an Ozone Depletion Potential of zero.
- Install Energy Star, "cool," or light-colored roofing on roof areas, cool pavements, and shade trees.
- Use windows with low-E coatings to reduce solar heat gain.
- Install R-value optimized wall and roof installation.
- Utilize filtered and controlled natural ventilation to reduce heating and air conditioning demand.
- Install Energy Star appliances, including clothes washers, dishwashers, refrigerators, AC units, and water heaters. These appliances use 10–15% less energy and water than standard models (EPA 2008b).
- Install Energy Star qualified lighting products for indoor and outdoor lighting in residential and commercial buildings. Energy Star qualified lighting can use up to 75% less energy than standard lighting (EPA 2008c).
- Prohibit wood-burning fireplaces in all structures.
- Use solar heating, automatic covers, and efficient pumps and motors for pools and spas.
- Install light emitting diodes (LEDs) for all outdoor lighting and traffic signals.

- Orient buildings to minimize exposure to summer sun exposure and to maximize winter sun exposure. Orient homes to the north or south to minimize summer solar heat gain and reduce electricity demand for cooling.
- Optimize heating and cooling by maximizing natural lighting to provide daytime interior lighting and minimize the need for artificial lighting.
- Incorporate active solar energy systems such as photovoltaic installations and solar hot water systems.

Water Conservation: Water efficiency measures shall be implemented to minimize water demand and maximize use of recycled water. Increased water efficiency minimizes the energy needed to pump, treat, and move water. Reduced energy demand corresponds to reduced emissions associated with water demand. Each building or home or park area shall be designed to reduce water consumption by 20%. The measures below are designed to assist in meeting their reduction requirements.

- Incorporate interior fixtures, tankless water heaters, and low-flow plumbing. Installation of high-efficiency plumbing fixtures that meet the definition of high-efficiency toilets and high-efficiency clothes washers should be incorporated.
- Install or reuse drought-tolerant landscaping trees and incorporate vines on selected walls to reduce potable water demand for irrigation.
- Use low-flow plumbing features on all fixtures and appliances to reduce potable water use.
- Install water-efficient irrigation systems and devices, including drip irrigation, soil moisture-based irrigation controls, and/or drought-tolerant landscaping to reduce potable water use for irrigation.
- Plant only native and water-efficient plants.
- Install only low-flow or waterless urinals.
- Install only low-flow toilets, faucets, and showers.
- Install sensor-activated lavatory faucets in public restrooms.
- Install moisture sensors that suspend irrigation during unfavorable weather conditions (rain, wind)
- Educate patrons about water conservation using interior and exterior signage.
- Consider the solar orientation of plant placement to maximize summer shade and winter solar gain.
- Give preference to water-efficient turf species that require minimal use of pesticides and fertilizers and are resistant to disease.
- Utilize recirculated water for decorative water features and for irrigation water.
- Require pool and spa covers.
- Design the irrigation system to prevent runoff, low-head drainage, overspray, or other similar conditions that cause irrigation water to flow onto adjacent properties, nonirrigated areas, hardscapes, roadways, or structures.

- Place trees on separate valves from shrubs, groundcovers, and turf areas.
- Require "smart" controllers such as weather-based irrigation controllers or other self-adjusting irrigation controllers for all irrigation systems that are able to accommodate all aspects of the landscape and irrigation design plans.
- Require sensors that suspend irrigation during unfavorable weather conditions (i.e., rain, freeze, wind) on all irrigation systems.
- Educate patrons and residents about the advantages of water conservation, energy efficiency, limited site disturbance, open space preservation, and renewable energy technologies.

CARB is the lead agency for implementing AB 32. CARB has met several milestones for achieving the state's goals: (1) develop a list of discrete early actions (CARB 2007); (2) assemble an inventory of historic emissions (CARB 2009c); (3) establish GHG emissions reporting requirements; and (4) set a 2020 emissions limit (CARB 2008b). The AB 32 Scoping Plan (CARB 2008b) outlines the state's strategy to achieve the 2020 target. Development within the Project area shall be consistent with the State's strategy and shall not impede the state's ability to achieve the goals set forth in AB 32. Several measures identified by the Scoping Plan will reduce GHG emissions within the Project area without additional action from the City of Brawley or the ICAPCD. These measures can be broadly grouped into various categories: transportation, electricity, natural gas, water use efficiency, landfill methane control, recycling, green building, and limits to high GWP chemicals in consumer products, among others.

Residual Impact

Impacts would be cumulatively significant and unavoidable.

Adoption of the measures cited above when fully incorporated into future development projects within the Rancho Porter Specific Plan Area will lessen GHG emissions from within the Project area and potentially even achieve a reduction target of 29% below BAU conditions as stated in AB 32. Without a quantitative analysis of GHG emissions from specific construction and operations proposed, it is not possible to know if the above listed measures would indeed achieve that target. Nevertheless, for the Project to achieve a broad reduction goal of 29% below BAU, in line with the state's goals, action is also required of many third parties—including but not limited to CARB, EPA, and local air districts—to adopt and fully implement GHG reduction requirements applicable to numerous sectors as described above. The lead agency lacks the authority to compel these third-party agencies to engage in these activities. The lead agency concludes that these requirements are within the responsibility and jurisdiction of these other public agencies, and can and should be adopted by these other agencies. Thus, based on an abundance of caution and despite the lack of formal criteria for determining the level of significance of a project's contribution to climate change at this time, the lead agency concludes that GHG emissions from the project are cumulatively considerable.

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4.3

BIOLOGICAL RESOURCES

This section describes the existing biological setting and the specific regulations related to biological resources. This section also identifies the potential impacts of the proposed Project on biological resources and summarizes the findings of surveys conducted by ICF Jones & Stokes in February 2008 (Appendix E to this EIR), which included focused survey work for Burrowing Owl. After mitigation, impacts on biological resources would be less than significant.

4.3.1 Biological Resources Setting

This section provides a description of the conditions that exist within the project study area, which includes a listing of existing plant species, plant communities, animals, any valuable habitat, and the overall potential for species to use or to be located on the Rancho-Porter project area. The project study area includes the proposed project site and a 500-foot buffer zone to account for project-related off-site impacts.

The project consists of approximately 274.4 acres of agricultural land bordered by fallow land, and irrigation channels. The site is best described as flat fields that are cultivated and irrigated for agriculture with several concrete-lined and dirt ditches that traverse the fields. Dirt roads and three residences with two associated structures occur on the project site. Rockwood Canal runs along the northeast corner of the project boundary, Best Canal runs along the along the west project boundary, and Bryant Drain runs through the center of the project site.

Adjacent properties are flat lying and are approximately at the same elevation as the site. The project area is bounded by Best Avenue on the west, State Route 11 on the east and south and Main Street along the north. Master planned communities are currently under construction north and west of the project site. Some fallow fields are still present within the boundaries of these construction areas. Residences and industrial buildings also occur along Best Avenue along the western boundary of the site.

Prior to the fieldwork, ICF Jones & Stokes conducted a review of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants and Animals, the California Natural Diversity Database (CNDDB), and the U.S. Geological Survey (USGS) 7.5-minute topographical maps of Brawley and seven

of the surrounding quadrangles (Alamorio, Brawley, Brawley Northwest, El Centro, Holtville West, Seeley, Weist and Westmorland). In addition, ICF Jones & Stokes reviewed the County of Imperial General Plan and designated critical habitat for endangered or threatened species that occur in the general vicinity of the project area.

4.3.1.1 Natural Vegetation Communities and Plants

Land cover types found on site consist of irrigated agricultural fields, disturbed habitat, and developed lands. Most of the agricultural fields are currently growing produce and hay. There is one dirt field that has recently been plowed and a smaller fallow field. Along the edge of the fallow field is a small remnant patch of desert saltscrub; however, this area is just a few remnant shrubs and is too small to function as a separate community. The disturbed habitat consists of dirt roads and all areas with no vegetative cover. The developed habitat consists of the three residences and their associated structures. In addition, within an irrigation canal is a very small patch of cattails (*Typha* sp). This area was not big enough to map as a separate vegetation community and would not support any animal species that use cattails for breeding.

Plant species observed includes wild oat (*Avena* sp.), bermuda grass (*Cynodon dactylon*), silver-leaved horse-nettle (*Solanum elaeagnifolium*), big saltbush (*Atriplex lentiformis*), alkali mallow (*Malvella leprosa*), bush seepweed (*Suaeda moquinii*), bristly ox-tongue (*Picris echioides*), London rocket (*Sisymbrium irio*), gum tree (*Eucalyptus* sp.) and fan palm (*Washingtonia* sp.). Several individuals of two species typical of moister soils or marshes were also observed - cattail (*Typha* sp.) and tamarisk (*Tamarix* sp.).

Sensitive Natural Plant Communities

No sensitive natural plant communities were detected through the CNDDB search or within the study area during the field survey.

Regional Plant Species of Concern

The CNDDB and CNPS searches identified two species with potential to occur on the project site - Abrams' spurge (*Chamaesyce abramsiana*) and sand food (*Pholisma sonorae*; Table 4.3-1). There is no potential for occurrence of either species due to a lack of suitable habitat on site. No special status plants were found during the field work.

Table 4.3-1. Sensitive Plant Species Potentially Occurring in the Project Vicinity

Common (Scientific) Name	Status[1]	Habitat	Occurrence/Potential
Plants			
Abrams' spurge (*Chamaesyce abramsiana*)	Federal – None State – None CNPS –2	Found in Mojavean desert scrub and Sonoran desert scrub on sandy flats. 5 - 915 m	No potential to occur. No appropriate habitat.
Sand food (*Pholisma sonorae*)	Federal – None State – None CNPS – 1B	Parasitic plant found on plants growing on loose shifting sand of the unstable dunes. 0-200m (0-656ft).	No potential to occur. No appropriate habitat.

Status:

Federal

E - listed as endangered under the federal Endangered Species Act.

T - listed as threatened under the federal Endangered Species Act.

PT - listed as proposed threatened under the federal Endangered Species Act.

State

E - listed as endangered under the California Endangered Species Act.

T - listed as threatened under the California Endangered Species Act.

CSC - species of special concern in California.

CNPS List – California Native Plant Society

1B – Rare, threatened or endangered in California and elsewhere

2 – Rare, threatened or endangered in California but more common elsewhere

3 – May be rare but more research needed to determine true status

4 – Limited distribution and are uncommon but not presently rare or endangered

Sources: Special Status information from CDFG 2007a. Nomenclature and plant descriptions from Beauchamp 1986, Hickman 1993, Simpson and Rebman 2006.

4.3.1.2 Wildlife

In general, the wildlife species detected are consistent with the species typical of the region and the vegetation communities found onsite. Avian species observed include Northern Harrier (*Circus cyaneus*), Red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Killdeer (*Charadrius vociferus*), Rock pigeon (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), Mourning dove (*Zenaida macroura*), Common ground-dove (*Columbina passerina*), Burrowing owl (*Athene cunicularia*), Northern rough-winged swallow (*Stelgidopteryx serripennis*) European starling (*Sturnus vulgaris*), Yellow-rumped warbler (*Dendroica coronata*), White-crowned sparrow (*Zonotrichia leucophrys*), Red-winged blackbird (*Agelaius phoeniceus*), Western meadowlark (*Sturnella neglecta*), Great-tailed grackle (*Quiscalus mexicanus*), House finch (*Carpodacus mexicanus*) and House sparrow (*Passer domesticus*). One of these species, the Northern harrier, is a special-status species.

Regional Animal Species of Concern

Eighteen sensitive animals may have potential to occur at the project site (CNDDB 2007). These species and their potential to occur within the proposed project vicinity are briefly discussed in Table 4.3-2.

Table 4.3-2. Sensitive Animal Species Potentially Occurring in the Project Vicinity

Common (Scientific) Name	Status1	Habitat	Occurrence/Potential
Amphibians			
Colorado river toad (*Bufo alvarius*)	Federal – None State - CSC	Found in a variety of desert and semi-arid habitats including brushy desert, semi-arid grasslands, and woodlands. Semi-aquatic and usually found in large, somewhat permanent streams, occasionally near small springs, temporary rain pools, human-made canals, and irrigation ditches. They frequently live in rodent burrows.	No collections or observations of this species have been made since 31 July 1955 (CDFG 1994). Even though there is a manmade channel, there is no potential for this species to occur.
Lowland (= Yavalai & San Felipe) leopard frog (*Rana yavapaiensis*)	Federal – None State - CSC	Prefers slackwater aquatic habitats dominated by bulrushes, cattails, and riparian grasses near or under an overstory of Fremont's cottonwoods and willows. Known to also use canals, roadside ditches, and ponds in the Imperial Valley during the first quarter of this century (CDFG 1994).	In California, the most recent records of this species are from an irrigation ditch east of Calexico on 12-13 April 1965 (CDFG 1994). Even though there is a manmade channel, there is no potential for this species to occur.
Reptiles			
Flat-tailed horned lizard (*Pyronosoma mcallii*)	Federal – PT State - CSC	Requires fine, wind-blown (aeolian) sand deposits and has been recorded in several vegetative associations where such a substrate is present. These include where creosote bush, burro weed, bur-sage, and indigobush are abundant (CDFG 1994).	Not observed and not expected to occur. No fine windblown sand deposits onsite.
Birds			
White-faced Ibis (*Plegadis chihi*)	Federal – None State - CSC	Marshes, swamps, ponds and rivers, mostly in freshwater habitats	Low potential to forage over site. No potential for breeding.
Northern harrier (*Circus cyaneus*)	Federal - None State - CSC		One male was observed foraging adjacent to the project site. This species will not nest at the project site.

Common (Scientific) Name	Status1	Habitat	Occurrence/Potential
Ferruginous hawk (*Buteo regalis*)	Federal – None State - CSC	Occur in semiarid grasslands with scattered trees, rocky mounds or outcrops, and shallow canyons that overlook open valleys. Nest on rocky outcrops, hillsides, rock pinnacles, or trees. Winter visitor/migrant in southern California. May occur along streams or in agricultural areas during migration.	Not observed. Moderate potential to occur in migration.
Mountain plover (*Charadrius montanus)*	Federal – FSC State – N/A	Occurs in short-grass prairies and is a winter migrant of agricultural areas.	Not observed. Low potential to occur as winter migrant.
Yuma clapper rail (*Rallus longirostris yumanensis*)	Federal – E State - T	Resident of shallow, freshwater marshes containing dense stands of cattails and bulrushes.	No potential to occur. No appropriate habitat.
Burrowing owl (*Athene cunicularia hypugea*)	Federal - FSC State - CSC	Occurs in open, dry annual or perennial grasslands, and deserts and scrublands with low-growing vegetation; utilizes burrows of other fossorial animals.	Observed. Four pairs were detected during focused surveys.
Short-eared owl (*Asio flammeus*)	Federal – None State – CSC	Occurs wide open spaces such as grasslands, prairie, agricultural fields, salt marshes, estuaries, mountain meadows, and alpine and Arctic tundra. Breeding habitat must have sufficient ground cover to conceal nests and nearby sources of small mammals for food. Only a winter visitor to the region.	Not observed. Low potential to occur as winter migrant.
Gila woodpecker (*Melanerpes uropygialis*)	Federal – None State - E	Permanent resident of mature cottonwood-tree willow riparian forest and mesquite riparian woodland.	Low potential to occur. Limited appropriate habitat.
Vermilion flycatcher (*Pyrocephalus rubinus*)	Federal – None State - CSC	Species nests in cottonwood, willow and mesquite and other desert riparian habitats adjacent to irrigated fields, ditches and mesic areas.	Low potential to occur foraging during migration. No appropriate nesting habitat.
Crissal thrasher (*Toxostoma crissale*)	Federal – None State - CSC	Mesquite brushland and densely vegetated washes.	No potential to occur. No appropriate habitat.
Yellow warbler (*Dendroica petechia*)	Federal – None State - CSC	Mature riparian woodlands.	No potential to occur. No appropriate habitat.
Gray-headed junco (*Junco hyemalis caniceps)*	Federal – None State - CSC	Winter visitor that can occur in any habitat type during migration.	Not observed. Low potential to occur as migrant.

Common (Scientific) Name	Status1	Habitat	Occurrence/Potential
Mammals			
Western yellow bat (*Lasiurus xanthinus)*	Federal – None State – None	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees (e.g. palm trees).	Not observed. Low potential to occur but there are some palm trees onsite.
Big-free tailed bat (*Nyctinomops macrotis*)	Federal – None State – CSC	Inhabits arid, rocky areas; roosts in crevices in cliffs.	Not observed. Low potential to occur foraging.
Palm Springs pocket-mouse (*Perognathus longimembris bangsi*)	Federal – None State - CSC	Found on level to gently sloping topography, sparse to moderate vegetative cover, and loosely packed or sandy soils.	No potential to occur. No appropriate habitat.
White-throated woodrat (*Neotoma albigula venusta*)	Federal – None State - None	Found in brush lands in southwestern deserts. Requires plants such as prickly pear, cholla cactus, mesquite, sotol, lechuguilla, and creosote bush to shelter their middens.	No potential to occur. No middens detected and no appropriate habitat.
American badger (*Taxidea taxus*)	State - CSC	Inhabit a diversity of habitats with principal requirements of sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred.	No potential to occur. No sign detected.

Status:

Federal

E - listed as endangered under the federal Endangered Species Act.

T - listed as threatened under the federal Endangered Species Act.

PT - listed as proposed threatened under the federal Endangered Species Act.

State

E - listed as endangered under the California Endangered Species Act.

T - listed as threatened under the California Endangered Species Act.

CSC - species of special concern in California.

Sources: Special Status information from CDFG 2007b. Nomenclature and vertebrate descriptions from AOU 1998 and 2005, Collins and Taggart 2002, Wilson and Reeder 1993, Wilson and Cole 2000, Unitt 2004.

Animal Species with No Potential to Occur

Of these species, the following have been determined to not have any potential to occur based on professional judgment and experience, personal communications, and scientific literature.

The **Colorado River toad** is believed to have been extirpated from California as there have been no sightings of this species in the Imperial Valley since 1955. Furthermore, this species has not been

reported in Baja California since 1951. Based on research of this species and its range, the Colorado River Toad is judged to have no potential for occurrence on the project site.

Flat-tailed horned lizards are not expected to occur on the project site based on the lack of food (e.g., native harvester ants) and fine sandy soils used as shelter. This species is judged to have no potential to occur on the project site.

Yuma clapper rail is found in Brawley however this species is a resident of shallow, freshwater marshes with dense stands of cattails and bulrushes. Even though there are cattails present onsite the stand is not large enough or dense enough to support this species. In addition, the primary food source for this subspecies (e.g., crayfish) was not observed within the agricultural drainages.

Crissal thrasher is typically found in mesquite brushland and densely vegetated washes and often occurs at somewhat higher desert elevations (above the "desert floor") in foothill scrubs. There are no stands of dense shrubby habitat found onsite and the site is within the "desert floor".

Yellow warblers are found in mature riparian woodlands. There are no mature riparian woodlands found onsite.

Palm Springs pocket-mouse is generally in level to gently sloping topography, with sparse to moderate vegetative cover, and loosely packed or sandy soils. As the project site is agricultural land there is no appropriate habitat for this species onsite.

American badgers are most abundant in drier open stages of most shrub and herbaceous habitat and dig in friable soils for cover. No suitable burrows were observed on the project site, thus this species is judged to have no potential for occurrence.

Animal Species with Potential to Occur

The following species have been determined to have potential to occur.

Burrowing owls have high potential to occur. Focused surveys were conducted and are discussed in subsequent section of this EIR.

Ferruginous hawk has a moderate potential for occurrence within the study area. Ferruginous hawks are winter migrants in Southern California and do not breed in the region.

The **Northern harrier** does forage adjacent to the study area. Northern harriers can breed in the region typically using patches of dense, often tall, vegetation in undisturbed areas. As the project area is an active agricultural area, nesting is not expected.

The **White-faced Ibis** has a low but reasonable potential to forage within the agricultural fields on the project site when the fields are flooded. Flooded fields create a common habitat type in the Imperial Valley.

Mountain plovers are winter migrants in California and a large percentage of those wintering in California occur in the Imperial Valley. This species occurs mostly in alfalfa fields that have been

harvested or grazed and low stubbly vegetation. Based on professional experience and scientific literature, the Mountain Plover has a low potential to forage on the project site. The nearest CNDDB (2007) record of this species is reported to be approximately 5.5 miles northwest of the project site in a burned hay field with leftover stubble.

Short-eared owls are a winter visitor to Imperial Valley and can occur in any wide open space such as grasslands and agricultural fields. This species has a low potential for occurrence within the study area.

According to Patten et al. (2003), **Gila Woodpecker** is a common breeding resident in the City of Brawley. While this species has occurred in the vicinity of the City of Brawley (CNDDB 2007), Gila Woodpecker would most likely not breed or roost in the fan palms occurring on the project site. This species feeds in trees, cacti, and bushes and the habitat onsite is not appropriate (The Birds of North America, No. 532 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.).

Vermilion flycatchers are known to forage in irrigated fields, ditches and wet areas. The species nests in cottonwood, willow and mesquite and other desert riparian habitats. As there is no desert riparian found on-site, this species has no potential to occur onsite for breeding but it has a low potential to occur foraging during migration.

The **Gray-headed junco** can occur in any habitat type during migration.

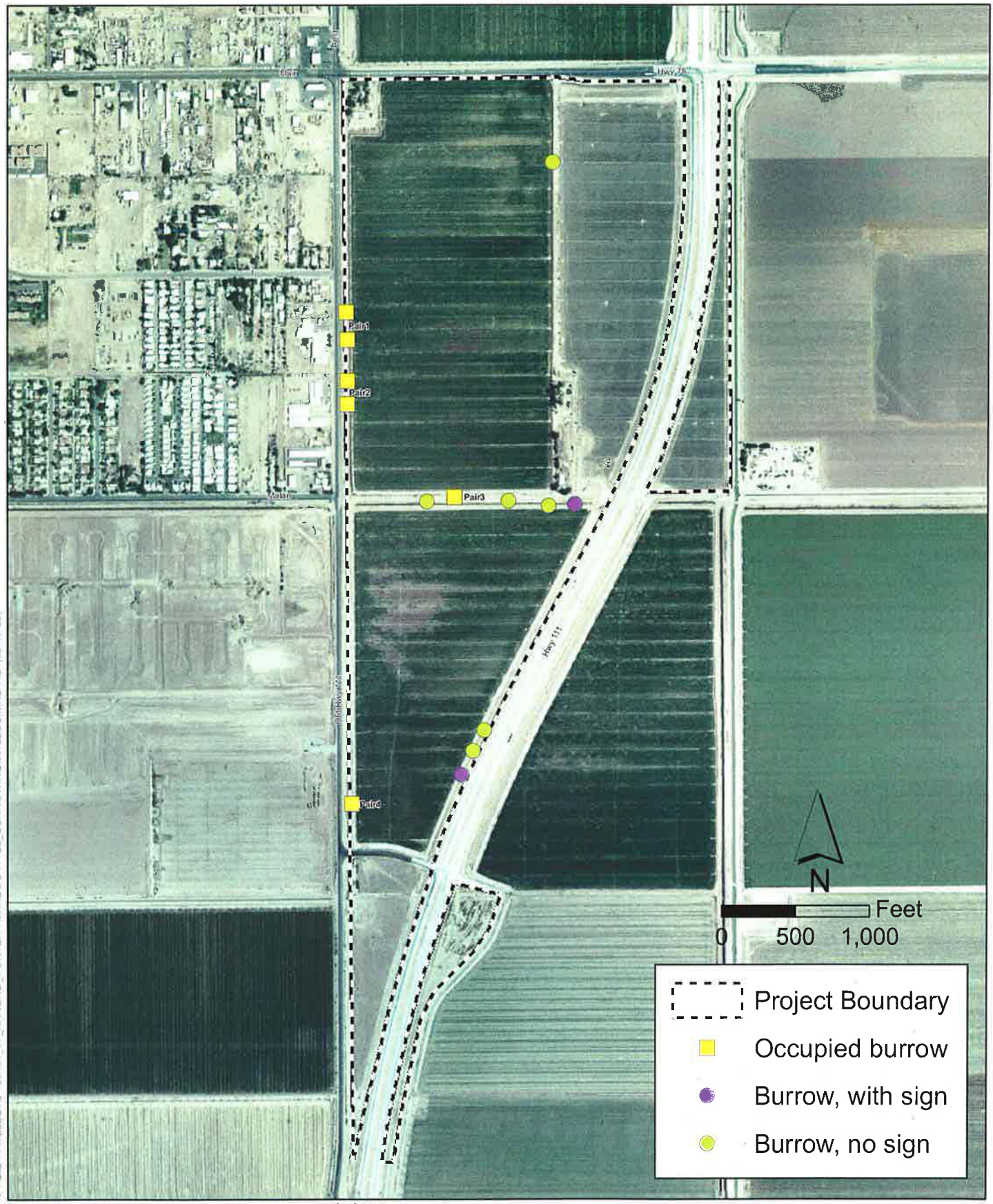
The CNDDB records **Western yellow bat** occurrences in the general vicinity of the City of Brawley. The Western yellow bat has low potential to forage over the project site; however, the fan palms may be used for roosting.

The **Big-free tailed bat** has low potential to occur foraging. No roosting habitat is found onsite.

Burrowing Owl Focused Survey

The Burrowing owl is a California Species of Special Concern and is also protected under the Migratory Bird Treaty Act (MBTA) and similar provisions under the CDFG Code. The Burrowing owl is considered a significant biological resource pursuant to CEQA and has been evaluated as such. Because of the general presence of suitable conditions, ICF Jones & Stokes biologists conducted a three-phase Burrowing owl survey pursuant to CDFG's *Burrowing Owl Survey Protocol and Mitigation Guidelines.* Phase 1 of the survey consisted of reviewing the suitability of habitat on the project site for occurrence of Burrowing owls. Once the site was deemed suitable, Phase 2 (burrow survey) and Phase 3 (owl survey) of the survey were conducted to identify any individuals nesting or otherwise active on the project site. The study area included the project sites limits of disturbance and a 500-foot buffer zone surrounding the project site.

Suitable habitat for Burrowing owl is present within the project study area and Burrowing owls were observed within the study area (Appendix E). In summary, four pairs of burrowing owls (eight individuals) were detected during the surveys (Figure 4.3-1, *Identified Burrowing Owl Locations*). These four pairs were observed adjacent to six burrows during the course of the surveys. In addition, after sunset foraging owls were detected throughout the project area. These were assumed to be the owls we observed at the burrows. Eight inactive burrows were found within the project area. Six burrows had no owl sign associated with them. Two burrows had old sign (scat and pellets). Figure 4.3-1 shows the



Source: ESRI Aerial Imagery, ICF Jones & Stokes

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Figure 4.3-1
Identified Burrowing Owl Locations
Rancho-Porter Project EIR

identified burrowing owl locations. The project site also supports foraging habitat for Burrowing Owl, Northern Harrier, Ferruginous Hawk, and other raptor species.

4.3.2 Regulatory Setting

Federal, state and local laws apply to the protection of the natural biological resources found at the project site. A discussion of the applicable rules and regulations pertaining to the proposed Rancho-Porter project is provided below.

4.3.2.1 Federal

Federal Endangered Species Act

Species listed as endangered and/or threatened by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (FESA) are protected under Section 9 of FESA, which forbids any person to "take" an endangered or threatened species. "Take" is defined in Section 3 of the Act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The U.S. Supreme Court ruled in 1995 that the term "harm" includes destruction or modification of habitat. Sections 7 and 10 of the Act may authorize "incidental take" for an otherwise lawful activity (a development project, for example) if it is determined that the activity would not jeopardize the species' survival or recovery.

Clean Water Act

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401, 402, and 404 may apply to projects based on the water resources present and the type of work that is proposed.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the United States, obtain a state certification that the discharge complies with other provisions of the CWA. The Regional Water Quality Boards administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States.

Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementation regulations by USACE are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as Section 404 (b)(1) Guidelines and were developed by the USEPA in conjunction with USACE (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into aquatic systems only if there is no practicable alternative that would have less adverse impacts.

Fish and Wildlife Coordination Act

This act applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term wildlife includes both animals and plants. Provisions of the Act are implemented through the National Environmental Policy Act (NEPA) process and Section 404 permit process.

Migratory Bird Treaty Act

This treaty with Canada, Mexico, and Japan makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests occupied by migratory birds during the breeding season. Migratory birds as defined under the Act are most native birds in North America except galliformes and a few others (e.g., Wrentit). Permitted activities are allowed under USFWS regulations for hunting and for actions to prevent or minimize risks to human safety.

4.3.2.2 State of California

California Environmental Quality Act

CEQA encourages the protection of all aspects of the environment by requiring state and local agencies to prepare multidisciplinary environmental impact analyses and to make decisions based on those studies' findings regarding the environmental effects of the proposed action. CEQA's main objectives are to disclose to decision makers and the public the significant environmental effects of proposed activities and to require agencies to avoid or reduce the environmental effects by implementing feasible alternatives or mitigation measures. Regulations for implementation are found in the state CEQA Guidelines published by the Resources Agency. The Burrowing Owl is considered a significant biological resource according to CEQA Guidelines.

California Endangered Species Act (CESA)

This act establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that affect both a state and federal listed species, compliance with the FESA will satisfy CESA if the Department of Fish and Game (CDFG) determines that the federal incidental take authorization is "consistent" with CESA under Fish & Game Code Section 2080.1. For projects that would result in a take of a state-only listed species, the project proponent must apply for a take permit under Section 2081(b).

California Fish and Game Code, Section 1600-1616

Under these sections of the CDFG Code, project proponents (public or private) are required to notify the CDFG prior to any project that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFG is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

Porter-Cologne Water Quality Act

Under the state Porter-Cologne Water Quality Control Act, the State Water Resources Control Board and regional boards assert jurisdiction over many discharges into "waters of the state." Where resources are subject to both state and federal regulations, Porter-Cologne compliance is coordinated with Clean Water Act Section 401 certification. For situations not also subject to federal regulation under the Clean Water Act, an activity impacting waters of the state may require issuance of individual Waste Discharge Requirements (WDRs), or coverage under the General Waste Discharge Requirements (Water Quality Order No. 2004-0004-DWQ) for small volume fill and dredge projects.

Dischargers whose construction project disturbs 0.4 hectare (1 acre) or more of soil or whose project disturbs less than 0.4 hectare (1 acre) but is part of a larger common plan of development that in total disturbs 0.4 hectare (1 acre) or more, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

California Fish & Game Code (3503, 3503.5, 3505, 3800, 3801.6)

These CDFG Code sections protect all native birds, birds of prey, and all nongame birds, including eggs and nests, that are not already listed as fully protected and which occur naturally within the state.

4.3.2.3 Imperial County

There are no Habitat Conservation Plans (HCP) or Natural Community Conservation Plans (NCCP) within the vicinity of the proposed project.

4.3.2.4 City of Brawley

There are no policies pertaining to biological resources such as tree ordinances or policies within the City of Brawley.

4.3.3 Impact Analysis

4.3.3.1 Methodology

Analysis of impacts associated with the proposed Rancho-Porter development, as well as associated mitigation measures where applicable, were developed based on a reconnaissance-level field survey and the focused Burrowing Owl survey. In the impact analysis, the potential for direct, indirect, and cumulative impacts was considered. *Direct impacts* are those effects that can be expected from direct removal and grading of lands. Examples of direct impacts include mortality of individuals and permanent loss of habitat. *Indirect impacts* are those effects that give rise to delayed, secondary effects. Examples of indirect impacts include fragmentation, pollination interruption, increased environmental toxins, plant and wildlife dispersal interruption, increased risk of fire, and increased invasion by nonnative animals and plants that out-compete natives. Indirect impacts can safely be assumed to increase mortality, reduce productivity, and/or reduce the value and functions of natural open space for the native species that inhabit it. *Cumulative impacts* are those direct and indirect effects that this project could contribute to in conjunction with other projects in the area. Cumulative impacts are discussed in Chapter 7 of this EIR.

4.3.3.2 Thresholds of Significance

The following significance thresholds are based upon Appendix G of the State CEQA Guidelines. An impact is considered significant if the lead agency determines that project construction or operation would:

BIO-1: Result in a substantial adverse effect on a Candidate, Sensitive, or Special-Status Species;

BIO-2: Result in a substantial adverse effect on Riparian Habitat or Other Sensitive Natural Community;

BIO-3: Result in a substantial adverse effect on federally protected aquatic resources as defined by Section 404.

During the Initial Study, it was determined that the no impacts would occur under the significance criteria listed below. Therefore, the following significance criteria are not discussed in the impact analysis below because suitable conditions are not present on-site or adjacent to the site:

- *substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or interference with the use of native wildlife nursery sites;*

The project site does not support a wildlife movement corridor or nursery site. Therefore, no impacts to such resources would occur.

- *a conflict with any local policy or ordinance protecting biological resources, such as a tree preservation policy or ordinance; or*

There are no local ordinances protecting the biological resources within the vicinity of the City of Brawley, including the project site. Therefore, no impacts to such policies or ordinances would occur.

- *a conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.*

There are no HCPs or NCCPs that cover the project site or occur within the vicinity of the City of Brawley. Therefore, no impacts to such plans would occur.

CDFG's Burrowing Owl Survey Protocol and Mitigation Guidelines (1993) define an impact to Burrowing Owl as:

- Disturbance or harassment within 50 meters (approx. 160 feet) of occupied Burrowing Owl burrows.
- Destruction of owl burrows and burrow entrances.
- Degradation of foraging habitat adjacent to occupied owl burrow

4.3.3.3 Impacts and Mitigation Measures

Threshold BIO-1: Would the Project result in a substantial adverse effect on a Candidate, Sensitive, or Special-Status Species?

Discussion

Native birds, such as the species observed in the study area (i.e., Western Meadowlark, Mourning Dove, Burrowing Owl, and Red-winged Blackbird), including their nests, eggs, and feathers, are protected year-round under MBTA and similar provisions under CDFG Code. Project implementation and construction-related activities including, but not limited to, grading, materials laydown, facilities construction and noise may result in the disturbance of nesting birds during the breeding season and therefore would trigger "take" under MBTA and CDFG Code. Since most of these species, with the exception of Burrowing Owl (discussed below), are common throughout Southern California, "take" of these species during the non-breeding season (September 1 through January 14) would not be considered biologically significant under CEQA. However, there is a potentially significant impact to birds and their nests during the breeding season. Therefore, impacts to native birds would be a significant impact and mitigation would be required.

Focused **Burrowing Owl** surveys identified 8 Burrowing Owls along with occupied burrows and foraging habitat within the study area. Burrowing Owls are protected year-round by MBTA and similar provisions under CDFG Code. The proposed project would represent a direct loss of 210 acres of suitable foraging habitat and six burrows used for breeding and non-breeding season roosts, triggering MBTA and similar provisions under CDFG Code. Loss of suitable foraging habitat would not be considered a biologically significant impact under CEQA, as there is sufficient raptor foraging habitat east and south of the project site. Loss of burrows would be a biologically significant impact under CEQA. Furthermore, as Burrowing Owls are known to occur on the project site, indirect effects may occur to owls adjacent to the project site. Impacts to Burrowing Owls would be a significant impact and mitigation would be required.

Ferruginous Hawks, a California Species of Special Concern, has a moderate potential for occurrence within the study area. The proposed project may remove 210 acres of suitable foraging habitat.

However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Therefore, impacts to Ferruginous Hawk would be less than significant.

The **Northern Harrier,** a California Species of Special Concern, does forage adjacent to the study area. The proposed project will remove 210 acres of suitable foraging habitat. However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Impacts to foraging habitat would be less than significant.

The **White-faced Ibis** has a low but reasonable potential to forage within the agricultural fields on the project site when the fields are flooded. Flooded fields create a common habitat type in the Imperial Valley and removal of this foraging habitat due to project implementation would not significantly impact the status of the White-faced Ibis. Therefore, impacts to this species would be less than significant.

Mountain Plovers are winter migrants in California and a large percentage of those wintering in California occur in the Imperial Valley. Removal of this foraging habitat of this potential winter migrant would not significantly impact the status of the Mountain Plover. Therefore, impacts to this species would be less than significant.

Short-eared Owls are a winter visitor to Imperial Valley. The proposed project may remove 210 acres of suitable foraging habitat. However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Therefore, impacts to Short-eared Owl would be less than significant.

Vermilion Flycatchers are known to forage in irrigated fields, ditches and wet areas. The proposed project will remove 210 acres of suitable foraging habitat. However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Impacts to foraging habitat would be less than significant.

The **Gila Woodpecker** may forage in the palms on site but the habitat is not appropriate for nesting. The proposed project will remove 210 acres of suitable foraging habitat. However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Impacts to foraging habitat would be less than significant.

The **Gray-headed Junco** can occur in any habitat type during migration. The proposed project will remove 210 acres of suitable foraging habitat. However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Impacts to foraging habitat would be less than significant.

The CNDDB records **Western Yellow Bat** occurrences in the general vicinity of the City of Brawley. Since this species does not have any federal or state special status, impacts to the Western Yellow Bat would be less than significant.

The **Big-free tailed Bat** has low potential to occur foraging. The proposed project will remove 210 acres of suitable foraging habitat. However, sufficient foraging habitat occurs in the vicinity of the project site in agricultural fields to the east and south. Impacts to foraging habitat would be less than significant.

No other rare or endangered plant or animal species are expected to occur on the project site, and the site does not support sensitive habitats or wildlife movement corridors. Therefore, the project's biological resources impacts are limited to those described above.

Impact Determination

Impact BIO-1. Construction of the Project would result in a substantial adverse effect on a Candidate, Sensitive, or Special-Status Species.

There would be a significant impact to birds and their nests during the breeding season. Therefore, impacts to native birds would be a significant impact and mitigation would be required.

Loss of burrows would be a biologically significant impact under CEQA. Furthermore, as Burrowing Owls are known to occur on the project site, indirect effects may occur to owls adjacent to the project site. Impacts to Burrowing Owls would be a significant impact and mitigation would be required.

Mitigation Measures

MM BIO-1: Preconstruction Surveys and Relocation Activities.

MM BIO-1a: Nesting Bird Surveys. If construction activities are to commence between January 15 through August 31, a preconstruction survey (within three days prior to construction activities, or 30 days for Burrowing Owl) shall be conducted by a qualified biologist to determine the presence or absence of active nests within and adjacent to the project site in order to avoid the nesting activities of breeding birds.

If nesting activities for non-raptor birds within 200 feet of the proposed work area, or within 500 feet of the proposed work area for raptors, are not detected, construction activities may proceed. If nesting activities are confirmed, construction activities shall be delayed within 200 feet of the active nest for non-raptor birds, and 500 feet for raptors, until the young birds have fledged and left the nest. A 200-foot zone around any active non-raptor nest and a 500-foot zone around any active raptor nest shall be demarcated and monitoring shall be conducted by a qualified biologist to ensure nesting birds are not being impacted.

MM BIO-1b: Preconstruction Burrowing Owl Survey and Avoidance. In order to ensure Burrowing Owls are not injured or killed as a result of site development, a preconstruction Burrowing Owl survey following CDFG protocol shall be conducted by a qualified biologist within thirty (30) days prior to construction activities. A 300-foot buffer shall be established around any active burrows during the breeding season (January 15 through August 31) and construction activities shall not commence within the buffer zone. During the non-breeding season (September 1 through January 14) a 160-foot buffer shall be established around active burrows and construction activities shall not commence within the buffer zone.

MM BIO-1c: Passive Relocation of Resident Burrowing Owls. Resident owls will be passively relocated in accordance with CDFG's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (1993) to ensure compliance with the federal MBTA and the CDFG Code.

MM BIO-1d: Compensation For Loss of Foraging and Roosting/Nesting Habitat. Foraging and roosting/nesting habitat shall be replaced at a ratio of approximately 6.5 acres per Burrowing Owl pair or unpaired owl in conformance with CDFG's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (1993). As 4 pairs were identified on-site, 26 acres is required for replacement. Lands shall be acquired by the property owner adjacent to the project site, if possible, or within the local vicinity. The project proposes to use 15 acres of retention basins and 14 acres of parkland as

burrowing owl relocation sites. If these sites are not to the satisfaction of CDFG, the applicant shall purchase habitat land suitable for burrowing owl relocation. Land acquired for such a purpose shall be in suitable "as-is" condition for burrowing owl habitat as to avoid any additional environmental impacts. Land that would require substantial alteration would not be appropriate unless in compliance with CEQA. CDFG shall agree to a suitable relocation site prior to the first grading permit.

MM BIO-1e: Burrowing Owl Worker Training Program. Training shall be given to managers and foreman prior to the start of construction activities. Training will be conducted by a qualified biologist and will include information on the life history and ecology of Burrowing Owls, including measures that can be taken to avoid impacts to the owls on-site.

MM BIO-1f: Construction Related Activities Daylight Hours of Operation. Construction will take place only during daytime hours to minimize disturbance to the owls.

MM BIO-1g: Biological Monitoring. A qualified biologist will monitor all activities related to the Burrowing Owl survey and relocation program. These activities include: preconstruction surveys, establishment of buffer areas around active nests if detected during construction, periodic monitoring to assess the status of nesting activities as needed, implementation of passive relocation if needed, and implementation of a burrowing owl training program.

Residual Impact
Impacts to Burrowing Owl, nesting birds, Northern Harrier, would be less than significant with the implementation of the above mitigation measures.

Threshold BIO-2: Would the Project result in a substantial adverse effect on Riparian Habitat or Other Sensitive Natural Community?

Discussion
While some riparian vegetation (i.e. cattails) occurs within a drainage, it is sparse and, as determined by ICF Jones & Stokes biologists, does not provide suitable habitat for any riparian species. The small clumps of cattails are also too small to provide any functioning community and are not considered significant. No riparian habitat or other sensitive natural communities are present on the project site.

Impact Determination
The Project would not result in a substantial adverse effect on riparian habitat or other sensitive natural community. Impacts to riparian habitat or sensitive natural communities would be less than significant.

Mitigation Measures
No mitigation measures are required.

Residual Impact
Impacts would be less than significant.

Threshold BIO-3: Would the Project result in substantial adverse effects on federally protected aquatic resources as defined by Section 404?

Discussion

The irrigation drainages that occur on the project site were created to supply water to the agricultural fields. Although these drainages were created in upland areas, they may be regulated under Section 404 of the CWA because they share hydrologic connections with other waters of the U.S. (i.e., Colorado River and the New River) through connections with other drains and canals. Based on the recent Rappanos case, it is unclear whether these drain features would be regulated under the CWA. No other aquatic resources as defined by Section 404 of the CWA are present on site. If the drains are regulated under Section 404 of the CWA, filling of these features would be considered significant. Significant impacts to waters potentially regulated under Section 404 of the CWA would be mitigated by obtaining a Section 404 permit from the U.S. Army Corps of Engineers. However, impacts to aquatic functions and values would be considered less than significant given that they do not support vegetation and are used entirely for agricultural irrigation.

Impact Determination

Project construction or operation would not result in substantial adverse effects on federally protected aquatic resources as defined by Section 404. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Residual Impact

Impacts would be less than significant.

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4.4

CULTURAL RESOURCES

Cultural resources include archaeological resources (both historic and prehistoric) and the built environment. Established criteria under CEQA define the significance of cultural resources. Impacts on archaeological resources generally occur during the construction period, while impacts on the built environment can be short term during the construction period or long term during the life of the project. State CEQA Guidelines Section 15120(d) prohibits an EIR from including information about the location of archaeological sites or sacred lands, stating, "No document prepared pursuant to this article that is available for public examination shall include… information about the location of archaeological sites and sacred lands."

ICF Jones & Stokes archaeologists Koji Tsunoda and Joshua D. Patterson conducted archaeological pedestrian survey of the project area on March 27, 2008. The results of the pedestrian survey are summarized in the following sections.

4.4.1 Cultural Resources Setting

4.4.1.1 Existing Site Conditions

The current project site is located in the southeastern part of the City of Brawley, Imperial County. The project site is currently used for farming activities, including farmland, canals, and some residential areas. Nearly the entire project site has been cultivated, and major surface disturbance is apparent. There are two currently occupied residential areas within the project site. A ranch complex, consisting of six buildings, is located at the southeast corner of the intersection between Highway 78 and Best Avenue. In addition, two houses with a coop in between are located near the east end of Malan Road within the project site. Portions of the IID Best Canal and Bryant Drain are within the project site.

4.4.1.2 Physical History

The proposed Rancho Porter project site is located in the Imperial Valley, at the southeastern end of the Colorado Desert. The area lies in the Salton Trough, within the boundaries of prehistoric Lake Cahuilla at an elevation of approximately 115 to 125 feet below sea level. Periodically, throughout prehistoric and historic times, the Colorado River would flow into this basin rather than the Gulf of California, creating Lake Cahuilla, which would vary in size depending on the duration of the Colorado River inflow. When the river would return to draining into the Gulf of California, the lake would recede through evaporation. The topography of the project area is flat and has historically been used for agricultural production since American settlers found the lake bottom sediments to be an excellent growing medium when Colorado River water could be diverted to irrigate crops in the extremely arid environment. The soil in the area consists of brown sandy loam.

4.4.1.3 Prehistoric History

The prehistoric history of the Imperial Valley area is dominated by the filling and desiccation cycles of ancient Lake Cahuilla, a product of the meanderings of the Colorado River. Human occupation in the area began approximately 10,000 years BP. A significant gap in the archaeological record between sites of the San Dieguito I and Yuman II complexes, a span of some 6,500 years, has been noted within the region (Moratto 1984:404). Beginning roughly 1,300 years BP the Colorado silted up its egress into the Gulf of California and the first of four known modern incarnations of Lake Cahuilla occurred. The adoption of agricultural practices in the floodplain of the Colorado River at this time gave rise to a cycle of stable agriculture in present-day eastern Imperial County and seasonal resource exploitation at the lake. Fish traps were a prominent feature from this time period and provide an excellent marker for the fluctuating lakeshore (Schaefer and Moslak 2000:3). At the time of contact with Europeans the area was inhabited by the Kumeyaay, whose range spanned the extent of present-day San Diego County.

The Kumeyaay (also known as Diegueño) of southern San Diego and Imperial Counties are the direct descendants of the early Yuman hunter-gatherers. The Kumeyaay were organized into patrilineal, patrilocal lineages that claimed prescribed territories, but did not own the resources except for some minor plants and eagle eyries (Luomala 1976; Spier 1923). All of the lineages occupied procurement ranges that required a certain level of residential mobility. In the mountains, some of the larger groups occupied a few large residential bases that would be occupied biannually, such as those occupied in Cuyamaca in the summer and fall, and in Guatay or Descanso during the rest of the year (Almstedt 1982; Rensch 1975). A variety of subsistence items were harvested due to the great variability within their environment. Acorns were a prime staple, but other storable resources such as seeds from grasses, manzanita, sage, sunflowers, lemonade berry, chia and other plants were also used along with various wild greens and fruits. Deer, small game and birds were hunted and fish and marine foods were collected. Hunting implements consisted of the bow and arrow, curved throwing sticks, nets and snares. Shell and bone hooks as well as nets were used for fishing. Lithic resources of quartz and metavolcanics were commonly available throughout much of the Kumeyaay territory. Other materials, such as obsidian, chert, chalcedony and steatite, occur in more localized areas and were acquired through direct procurement or exchange. Projectile points included the Cottonwood Series points, as well as Desert Side-notched points, both commonly produced.

4.4.1.4 European Contact

Contact between Europeans and the Kumeyaay of this area was made in the late 18th century. A historic record suggests that the Anza Exploring Expedition, one of the earlier explorations in Southern California, passed through Imperial Valley in 1774 on their way to Alta California. Santa Rosa de Las Lajas, located just south of Seeley along the Interstate 8 freeway, was one of the places the explorers rested (State of California 2004). Between 1774 and the 1850s a pattern developed of increasing interrelationship and economic dependency. A series of epidemics during this time devastated the Kumeyaay community, resulting in the shrinking of population centers and an ever-increasing reliance on nontraditional lifestyles (Pioneers Museum n.d.:3).

Kumeyaay culture and society remained stable until the advent of missionization and displacement by Hispanic populations during the 18th century. The effects of missionization, along with the introduction of European diseases, greatly reduced the native population of southern California. By the early 1800s California was under Mexican rule. The establishment of ranchos under the Mexican land grant program further disrupted the way of life of native inhabitants.

4.4.1.5 Modern History

The modern history of the Imperial Valley, which provides the context for evaluating the resources under consideration, began with migration, both regional and transcontinental, over the desert Sonora Road route toward San Diego during the nineteenth century. The agricultural potential of the valley was recognized by Dr. William P. Blake, noting it during his tenure as geologist and mineralogist accompanying the first U.S. Government survey of the area following acquisition of the land after the Mexican-American War (Norris and Jacques 1980:40). Mail routes were soon developed between San Diego and Ft. Yuma, and in the subsequent decades, road improvements opened the area to early migrants.

Irrigation projects to increase the water supply to this desert area had been in the works since 1859, when Dr. O.M. Wozencraft was granted land rights from the State of California on the condition he establish his proposed water project (El Centro Chamber of Commerce n.d.:2). It was not until later in the century, however, that success would be achieved, based on the idea of a single canal to irrigate the valley. Irrigation from diverted Colorado River water began in 1901, under the direction of the California Development Company, and the population of the area began to increase (Steere 1952:16). Irrigation allowed the population to boom, with 12,000 desert pioneers in the valley by 1905 and an increase of irrigated acreage from only 1,500 to 67,000 by that time (Pioneers Museum n.d.:1).

Early flooding in the first decade of the canal's operation resulting from Colorado River silt accumulation had disastrous results, but determination led to the creation of the Imperial Irrigation District, which took control of the area from the California Development Company and the Southern Pacific Railroad in 1911 (Smith 1979:124-125). Irrigation ditches continued to appear, with nearly 800 miles completed in the early decades of the twentieth century (Norris and Jacques 1980:44). By 1929, the first farm tile drainage was laid in the county and, by 1922, the IID was in possession of the 13 mutual water companies that developed and operated the valley's distribution canals (El Centro Chamber of Commerce n.d.:4, Imperial Irrigation District 1998).

Despite debates over ownership and control of Colorado River water, construction of the Boulder (Hoover) Dam in 1935 and the All-American Canal in 1941 eventually opened the way for a reliable supply of water from the Colorado River. This irrigation source, closely paralleling the U.S.-Mexico border, has since sustained the agriculture of the valley.

4.4.2 Regulatory Setting

4.4.2.1 Federal Regulations

The National Historic Preservation Act (NHPA) of 1966, as amended from time to time, is the primary set of federal laws governing projects that may affect cultural resources. Section 106 of the National Historic Preservation Act requires that all federal agencies review and evaluate how their actions or undertakings may affect historic properties. Historic properties may include those that are already listed in national registers or that have not yet been reviewed and considered. The regulations implementing Section 106 are codified at 36 CFR Part 800 (2001). The Section 106 review process involves four-steps:

1. Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties;
2. Identify historic properties by determining the scope of efforts, identifying cultural resources and evaluating their eligibility for inclusion in the NRHP;
3. Assess adverse effects by applying the criteria of adverse effects to historic properties (resources that are eligible for inclusion in the NRHP);
4. Resolve adverse effects by consulting with the State Historic Preservation Officer (SHPO) and other consulting agencies, including the Advisory Council if necessary, to develop an agreement that addresses the treatment of historic properties.

To determine whether an undertaking may affect NRHP-eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP.

4.4.2.2 State Regulations

CEQA Guidelines

CEQA is the primary state law that may affect cultural resources. Other laws governing cultural resources include California Public Resources Code 5097.9 et seq. and Health and Human Safety Code 7050.5 et seq. Records about Native American graves, cemeteries, and sacred places, as well as information about the location of archaeological sites shall not be disclosed to the public (California Government Code 6254.10). Such information is considered sensitive and confidential and should not be contained in any public document.

CEQA mandates that local agencies consider potential significant environmental impacts on cultural resources as a result of proposed projects. Significant resources are those that are listed in or considered eligible for listing in the CRHR. The fact that a resource or property is not listed on the CRHR does not preclude it from being significant and does not make it exempt from CEQA evaluation.

CEQA Guidelines define three ways that a property may qualify as a *historical resource* for the purposes of CEQA review:

- The resource is listed in or determined eligible for listing in the CRHR.
- The resource is included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey that meets the requirements of Section 5024.1(g) of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record.

These three conditions for qualifying as a historical resource under CEQA are related to the eligibility criteria for inclusion in the CRHR. A cultural resource may be eligible for inclusion in the CRHR for the same criterion listed for the NRHP.

In addition, properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purposes of CEQA.

CEQA states that a *unique archaeological resource* is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that the resource:

- contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- is directly associated with a scientifically recognized important prehistoric or historic event or person.

Senate Bill 18 requires city and county governments to notify California Native American tribes prior to the adoption or any amendment of a general plan or specific plan. The intent of the bill is to provide the tribes an opportunity to participate in local land use decisions at an early stage for the purpose of protecting or mitigating impacts on cultural places. As defined in the California Public Resources Code Sections 5097.9 and 5097.995, California Native American Cultural Places include:

- Native American sanctified cemetery, places of worship, religious or ceremonial site, or sacred shrine; and
- Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historic Resources, including any historic or prehistoric ruins, any burial ground, and any archaeological or historic site.

4.4.3 Impact Analysis

4.4.3.1 Methodology

Cultural resources analysis is divided into three phases. The purpose of a Phase 1 study is to inventory a project area to determine if there are cultural resources (buildings, structures, objects, or archaeological sites) located within or adjacent to the project footprint. If cultural resources are identified within the project footprint, a Phase 2 evaluation of those resources is conducted. The purpose of the evaluation is to determine if the resources are significant (e.g., eligible for listing on the California Register of Historic Resources). For archaeological sites, this normally refers to conducting subsurface testing to see if there are subsurface deposits that could yield important data. If the evaluation indicates the potential for important subsurface deposits (e.g., a site eligible for listing on the California Register of Historic Resources), a Phase 3 data recovery is required. The purpose of the data recovery program is to conduct systematic, research-oriented excavations of the site(s) to remove the important archaeological deposits so that they will not be impacted by ground-disturbing activities.

Records Search

Prior to the archaeological pedestrian survey, a records search was conducted at the Southeast Information Center located at the Imperial Valley College Desert Museum in Ocotillo on March 25, 2008. This research involved a review of the California Historical Resources Inventory System, National Register of Historic Places (NRHP), California Register of Historical Resources, California Inventory of Historic Resources, California Historical Landmarks, and local historical maps. The records search was conducted by personnel at the Southeast Information Center to identify previously recorded historical/archaeological resources and previous cultural resource studies within a one-mile radius of the project area.

The results of the records search revealed that five cultural resources have been recorded within a one-mile radius of the project area. One of the cultural resources, P-13-008011, is located within the project site. This cultural resource is a historic-period ranch complex that consists of a total of six buildings. These buildings were recorded by Paula Boghosian (1994) of Caltrans. Boghosian also evaluated these buildings for NRHP eligibility. The result of the evaluation indicated that these buildings were not eligible for listing in the NRHP. It also appears ineligible for the CRHR based on its lack of association with significant persons or events, lack of architectural value or association with a significant architect or builder, and lack of potential to yield important historical information.

The records search results also indicated that 15 cultural resource studies have been conducted within a one-mile radius of the project site. No cultural resource studies have been conducted within the proposed project site.

Native American Participation

ICF Jones & Stokes contacted the Native American Heritage Commission (NAHC) to including search of their Sacred Lands File for the proposed project site on March 18, 2008. The result of the Sacred Lands

File search indicated no known Native American cultural resources within the project site. To follow the recommendation by the NAHC, ICF Jones & Stokes contacted six local Native American representatives to request additional information. The Quechan Indian Tribe responded in March 2008 and again on June 17, 2008, requesting a copy of the survey report for the project.

Pedestrian Survey

An intensive-level archaeological pedestrian survey of the proposed project site was conducted by ICF Jones & Stokes archaeologists Koji Tsunoda and Joshua D. Patterson on March 27, 2008. Majority of the project site was highly disturbed by cultivation and accessing traffic. The ground visibility within the project site was extremely low (approximately one to three percent) due to thick coverage formed by crops.

During the pedestrian survey of the project site, no prehistoric cultural resources were identified. Four properties within the project site were recorded and evaluated. Each newly identified resource was recorded on Department of Parks and Recreation (DPR) Series 523 forms (Primary Record and Building/Structure/Object Record), which are bound separately as Confidential Appendix K. Previously recorded historic-period ranch complex, P-13-008011, was relocated during the current survey. This resource consists of a total of six buildings, and was found not eligible to the NRHP in 1994 (Boghosian 1994).

In addition, ICF Jones & Stokes recorded three newly identified cultural resources within the current project site.

Building Foundation RP-01

Temporary resource number RP-01 is a concrete building foundation that appears on USGS Brawley 7.5' topographic quadrangle map of 1957. The concrete foundation has engraved writing that reads "1957", which appears to be the construction date. No associated artifacts were observed.

Small Surface Scatter RP-02

Temporary resource number RP-02 consists of a small surface scatter of undiagnostic glass, ceramic and metal with no apparent depth; palm trees; and a concrete outbuilding foundation. On the USGS Brawley 7.5' topographic quadrangle map of 1957, a building is indicated in the location of the sparse scatter. The building can be seen on a 2002 aerial photograph, though it does not appear in a 2005 aerial and appears to have been demolished by this date. It is possible that this was the building that appears on the 1957 USGS map, and demolished sometime between 2002 and 2005.

Best Canal and Bryant Drain RP-03

Temporary resource number RP-03 is the canal system that consists of portions of Best Canal and Bryant Drain. The Best Canal appears on the 1908 (reprinted 1915) El Centro 30' topographic quadrangle map

as "Best Ditch". Best Canal runs north-south along Best Avenue and turns to the east at approximately 330 feet south from the intersection with Wildcat Road. An approximately 5500-foot segment of the Best Canal is located within the project site. The northern portion of this segment, measuring approximately 2400 feet, is an open ditch and the south end of this segment enters a concrete-covered canal dated to 2004, according to a date stamp in the concrete. Bryant Drain runs east-west along Malan Street, and an approximately 1600-foot segment is located within the project site. The entire length within the project site is a ditch without concrete cover. Both the east and west ends of this segment have concrete structures. The Bryant Drain first appears on the 1957 USGS Brawley 7.5' topographic quadrangle.

4.4.3.2 Significance Criteria

Before the level of significance of impacts can be determined and appropriate mitigation measures developed, the significance of historical resources must be determined. The following are steps normally taken in a historical resources investigation to comply with CEQA:

- Identify historical resources.
- Evaluate the significance of the historical resources based on established thresholds of significance.
- Evaluate the effects of a project on all historical resources.
- Develop and implement measures to mitigate the effects of the project on significant historical resources.

Significant historic resources are those that meet specific criteria of CEQA. Section 15064.5(a) of the CEQA Guidelines defines the criteria for a historic resource as:

- a resource listed in the California Register of Historic Resources (Public Resources Code, Section 5024.1), or determined to be eligible by the State Historic Resources Commission for listing in the register;
- a resource included in a local register of historic resources or identified as significant in a historic resource survey, unless the preponderance of evidence demonstrates that such a resource is not historically or culturally significant (Public Resources Code, Sections 5020.1 and 5024.1); or
- any object, building, structure, site area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, providing the lead agency's determination is supported by substantial evidence in light of the whole record.

Generally, a resource is considered to be historically significant if the resource meets the criteria for listing on the California Register of Historic Resources (CRHR), including the following:

- it is associated with events that have a significant contribution to the broad patterns of California's history and cultural heritage;
- it is associated with the lives of persons important in our past;
- it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- it has yielded, or may be likely to yield, information important in prehistory or history.

The fact that a resource is not listed in—or determined to be eligible for listing in—the California Register of Historical Resources, or included in a local register of historical resources, or identified in a historical resources survey does not preclude a lead agency from determining that the resource may be a historic resource.

Isolated artifacts are not considered potentially significant prehistoric or historic resources because they do not fulfill minimum standards as set forth by Office of Historic Preservation guidelines (Office of Historic Preservation, California 1995) Demolition, replacement, substantial alteration, and relocation of historical resources are actions that would adversely change the significance of those resources (Title 14 CCR 15064.5).

Development must also comply with state laws pertaining to the inadvertent discovery of human remains of Native American origin. The procedures that must be followed if burials of Native American origin are discovered are described below in Section 4.4.2., Impacts and Mitigation Measures.

Thresholds of Significance

State CEQA Guidelines Section 15064.5(b)(1) and (2) identifies the threshold for a significant impact on a historical resource as the potential to cause a substantial adverse change in the significance of a historical resource. That means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. The proposed project would result in a significant impact to cultural resources if it would:

CUL-1: Cause a substantial adverse change in the significance of known archaeological or historical resources as defined in Section 15064.5 of the CEQA Guidelines;

CUL-2: Cause a substantial adverse change in the significance of previously unidentified archaeological or historical resources pursuant to Section 15064.5 of the CEQA Guidelines; or

CUL-3: Disturb any human remains, including those interred outside of formal cemeteries.

4.4.3.3 Impacts and Mitigation

Significance of On-site Resources

As discussed above, the results of the records search revealed that five cultural resources have been recorded within a one-mile radius of the project area. One of the cultural resources, P-13-008011, is located within the project site. This cultural resource is a historic-period ranch complex that consists of a total of six buildings. These buildings were recorded by Paula Boghosian (1994) of Caltrans. Boghosian also evaluated these buildings for NRHP eligibility. The result of the evaluation indicated that these buildings were not eligible for listing in the NRHP. It also appears ineligible for the CRHR based on its lack of association with significant persons or events, lack of architectural value or association with a significant architect or builder, and lack of potential to yield important historical information.

In addition, ICF Jones & Stokes recorded three newly identified cultural resources within the current project site and their potential historical significance is discussed below.

Building Foundation RP-01

Temporary resource number RP-01 is a 1957 concrete building foundation with no associated artifacts. This resource appears ineligible for the CRHR based on its lack of association with significant persons or events, lack of architectural value or association with a significant architect or builder, and lack of potential to yield important historical information.

Small Surface Scatter RP-02

Temporary resource number RP-02 does not appear eligible to the CRHR. It is not associated with significant persons or events, does not possess architectural value or association with a significant architect or builder, and does not have the potential to yield important historical information.

Best Canal and Bryant Drain RP-03

The Best Canal, in use prior to 1908, was one of the earliest ditches in the Imperial Irrigation District system. However, the segment within the project area has undergone significant modification. Modifications include the installation of concrete covers, the undergrounding of portions of the canal within the project area, and installation of water gates. The Bryant Drain appears to be a later construction, in use by 1957. These canals, however, are small parts of the larger water conveyance system in the Imperial Valley and are not, by themselves, directly associated with events that have shaped history in the region. These are localized, minor laterals constructed to irrigate the agricultural fields in the project area, and not major components of the overall irrigation system in the Imperial Valley. None of the major arteries of the Imperial Valley irrigation system is located within or immediately adjacent to the project boundaries. While the Imperial Valley's irrigation system as a whole may be historically important, the Best Canal, Rockwood Canal, and Bryant Drain are not eligible for the National Register or California Register.

Threshold CUL-1: Would the Project cause a substantial adverse change in the significance of known archaeological or historical resources as defined in Section 15064.5 of the CEQA Guidelines?

Discussion

No previously recorded archaeological or historical resources would be impacted by the development of the proposed project, and no archaeological or historical resources, as defined in Section 15064.05 of the CEQA Guidelines, were identified during the pedestrian survey of the project area.

Impact Determination

The Project would not cause a substantial adverse change in the significance of known archaeological or historical resources as defined in Section 15064.5 of the CEQA Guidelines. Impacts would be less than significant.

Mitigation Measures
No mitigation is required.

Residual Impact
Impacts would be less than significant.

Threshold CUL-2: Would the Project cause a substantial adverse change in the significance of previously unidentified archaeological or historical resources pursuant to Section 15064.5 of the CEQA Guidelines?

Discussion
No cultural resources were identified during the pedestrian survey of the project area, and no previously recorded archaeological resources would be impacted by development of the proposed project. However, the project would involve substantial excavation for building footings, utilities, and other infrastructure. Therefore, buried cultural deposits that were not identified during the surface survey may be encountered during construction. This would constitute a significant impact if not reduced to a level less than significant.

Impact Determination
Impact CUL-1: The Project would have the potential to cause a substantial adverse change in the significance of previously unidentified archaeological or historical resources pursuant to Section 15064.5 of the CEQA Guidelines. Impacts would be significant without mitigation.

Mitigation Measures

MM CUL-1: Significance Evaluation by Qualified Archaeologist. In the event of the discovery of buried cultural resources, project activities in the vicinity of the resources shall be temporarily halted. A qualified archaeologist shall be consulted to assess the significance of the resource and to provide proper management recommendations (e.g., resource avoidance or data recovery excavations). These recommendations shall be implemented to the satisfaction of the City of Brawley and applicable regulatory agencies.

Residual Impact
Impacts would be less than significant with implementation of the above mitigation measure.

Threshold CUL-3: Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Discussion
Because the project would involve substantial excavation for building footings, utilities, and other infrastructure, buried cultural deposits, including human remains, that were not identified during the surface survey may be encountered during construction.

Impact Determination
Impact CUL-2: The Project would have the potential to disturb any human remains, including those interred outside of formal cemeteries. Impacts would be significant without mitigation.

Mitigation Measures

MM CUL-2: Consultation with County Coroner and Notification of Most Likely Descendant. If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resource Code Section 5097.98. The County Coroner shall be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner shall notify the NAHC, which would determine and notify the Most Likely Descendent (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Residual Impact

Impacts would be less than significant with implementation of the above mitigation measure.

4.5

GEOLOGY AND SOILS

This section discusses the geologic, soil, and groundwater conditions on-site and the associated regulatory setting, which includes discussion of state building standards. The impact analysis discusses the Project's impacts from geologic hazards such as earthquakes and unstable soil conditions. After mitigation, impacts related to geologic conditions would be less than significant.

4.5.1 Geologic Setting

4.5.1.1 Local Geology

The site is located within the Salton Trough, a topographic and geologic structural depression created by large scale regional faulting. The trough is bound to the north by the San Andreas Fault and Chocolate Mountains and to the southwest by the southwest Peninsular Range and faults of the San Jacinto Fault Zone. The upper 3,000 feet of the Salton Trough is generally underlain by Pleistocene and Holocene-age deposits originating from lake sediment with the project site itself being underlain by lake deposits.

The lake deposits underlying the site typically consist of lacustrine deposits, which are composed of interbedded lenticular and tabular silt, sand, and clay. The sands and silts are generally non plastic; the clays can be of low- to high-plasticity. The sands and silts can range from very loose to very dense; the clays can range from soft to very stiff. Basement rock consisting of Mesozoic granite and Paleozoic metamorphic rocks are estimated to exist at depths between 15,000–20,000 feet.

4.5.1.2 Faults and Seismicity

The project site is located within a seismically active area of Southern California and therefore is subject to ground shaking conditions common to the region. The site is not within an Alquist-Priolo Earthquake Fault Zone, but is located in the vicinity of several active faults. The closest faults are the Imperial Fault, located approximately 1.1 miles southwest from the site; the Brawley Seismic Zone Fault, located approximately 2.1 miles east/northeast from the site; the Brawley Fault, located approximately 2.6 miles

east/southeast from the site; and the Superstition Hills Fault, located approximately 8.7 miles west/southwest from the site. These faults are estimated to be able to produce earthquakes of magnitudes of 7.0, 6.4, 7.0, and 6.6, respectively.

Several known faults are in the vicinity of the site including the Imperial, Brawley, and Superstition Hills Faults. A search of all known faults within a 62 mile (100 kilometer) radius of the project site was conducted with results available in Figure 1 and Table 1 of Appendix F. The search identifies faults in this radius, computes deterministic ground accelerations at the site based on maximum credible earthquake expected on each of the faults, and the distance from the fault to the site.

4.5.1.3 Groundwater and Liquefaction

Groundwater is typically encountered at approximately eight to 10 feet below ground surface in the vicinity of the project site as evidenced by measurements west of the project site (west of Best Avenue) in a December 2005 measurement. At the south end of the site, free flowing water bearing strata are located within 10 feet of ground surface and at depths greater than 14 to 16 feet in the central and northern portions of the site. Groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, drainage, and site grading. There is uncertainty in the accuracy of short-term water level measurements, particularly in fine-grained soil and the referenced groundwater level should not be interpreted to represent an accurate or permanent condition.

Subsurface agriculture tile drainage pipelines (4-inch diameter plastic or clay perforated pipelines encapsulated by sand/gravel envelope) exist at a depth of about 5 to 6 feet below this site and have assisted in preventing an artificially high groundwater depth. Abandoning and plugging the subsurface drainage pipelines can allow groundwater levels to rise variably across the site. Cutting the subsurface tile drain pipelines with utility trenches will likely result in some localized trench flooding.

Liquefaction is a process in which soil grains in saturated sand or silt deposits lose contact due to earthquakes or other sources of ground shaking, causing the soil to temporarily behave as a liquid. Liquefaction typically occurs in loosely packed (low to medium density), cohesionless (not clayey), saturated soils (relatively shallow groundwater) when groundshaking of sufficient intensity occurs to function as a trigger mechanism. The project site meets the conditions for liquefaction to occur (see Section 4.5.3.3).

4.5.1.4 Soils

A field exploration was conducted on August 14, 2007 showing subsurface soils encountered consist of 16 to 18 feet of stiff to very stiff silty clays and clays overlying a 10 to 12 thick medium dense to dense silty sand layer. Stiff to very stiff clays extend from 30 feet to 50 feet, the maximum depth of exploration. The sand layer is slightly deeper (24 feet) and thicker (about 16 feet) in the extreme southern portion of the site. The native surface clays have moderate to high expansion potential.

In addition, the soil on-site is highly corrosive to metals and contains sufficient sulfates and chlorides to require special concrete mixes and protection of embedded steel components when concrete is placed in contact with native soil.

4.5.1.5 Geotechnical Hazards

The hazard of landsliding is unlikely due to the regional planar topography. No ancient landslides are shown on geologic maps of the region and no indications of landslides were observed during site investigation by Landmark Consultants Incorporated.

The site also is not located in proximity to any known volcanically active area and the risk of volcanic hazards is considered very low. A tsunami in the Pacific Ocean would not affect the site due to the project area's distance from the coast. The site is not within a 100-year flood zone, as delineated by the Federal Emergency Management Agency; therefore, the site is not subject to hazardous flooding conditions.

4.5.2 Regulatory Setting

4.5.2.1 State of California

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 requires that special geologic studies be conducted to locate and assess any active fault traces in and around known active fault areas before development of structures for human occupancy. The proposed Rancho Porter project is not within any of the required special studies zones.

Cobey-Alquist Flood Plain Management Act

As state policy, this legislation encourages local governments to plan, adopt, and enforce land use regulations for flood plain management, as well as identifying requirements for receiving state financial assistance for flood control.

Landslide Hazard Identification Program

Under the Landslide Hazard Identification Program, the State Geologist is required to prepare maps of landslide hazards within urban and urbanizing areas. Public agencies are encouraged to use these maps in land use planning and decision making related to building, grading, and development permits (Public Resources Code Section 2687 [a]).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990, (Public Resources Code, Chapter 7.8, Section 2690-2699.6) addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. Existing geological, geophysical and geotechnical data is gathered and evaluated by severity

of the seismic hazards. Areas prone to liquefaction and earthquake-induced landslides are designated Zones of Required Investigation, and cities and counties are required to use the Seismic Hazard Zone Maps in their land use planning and building permit process.

State Uniform Building Code

The California Code of Regulations, Title 24 (California Building Standards Code) applies to all applications for residential building permits. The State Uniform Building Code consists of 11 parts that contain administrative regulations of the California Building Standards Commission and regulations of all state agencies that implement or enforce building standards. Local agencies must ensure that development in their jurisdictions complies with guidelines contained in the Code. Cities and counties can, however, adopt building standards beyond those provided in the State Uniform Building Code.

4.5.2.2 City of Brawley

City of Brawley Codes

The City of Brawley enforces the 1991 Uniform Building Code, Uniform Mechanical Code, and National Electrical Code, which contain structural requirements for existing and new buildings. The codes are designed to insure structural integrity during seismic and other hazardous events and prevent personal injury, loss of life, and substantial structural damage.

City of Brawley Unreinforced Masonry Ordinance

The City of Brawley Unreinforced Masonry (URM) Ordinance was established to comply with the 1986 state Unreinforced Masonry Building Law. This state law requires local governments to inventory URM buildings and establish earthquake hazard mitigation programs. The City's URM Ordinance, which was recently revised, provides minimum standards for structural seismic resistance to reduce the risk of life loss or injury during an earthquake. Conformance with the ordinance is voluntary to allow for sensitivity to the financial needs of property owners and ensure the preservation of Brawley's building stock.

4.5.3 Impact Analysis

4.5.3.1 Methodology

Landmark Consultants, Incorporated conducted a survey of the project site and a review of available literature and maps related to geologic hazards known to occur within the region and the area surrounding the project site. They prepared a Geotechnical Report (Appendix F) in September 2007 to present their findings. These findings resulted in design and construction recommendations that address the geologic and soil conditions at the site. The following impact analysis summarizes the information included in that report.

4.5.3.2 Thresholds of Significance

The criteria used to determine the significance of an impact from geological resources is based on the model initial study checklist in Appendix G of the CEQA Guidelines and the City of Brawley's significance criteria. The proposed Project would result in a significant impact from geological resources if it would create a substantial risk to life or property from:

GEO-1: A rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, or through strong seismic groundshaking;

GEO-2: A seismic-related ground failure, including liquefaction;

GEO-3: Being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

GEO-4: Geologic hazards such as landslides.

4.5.3.3 Impacts and Mitigation Measures

Threshold GEO-1: Would the Project result in a substantial risk to life or property from a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, or through strong seismic groundshaking?

Discussion

The project site is located in an area with high potential for seismic activity. The Imperial Valley, San Jacinto, Elsinore, and San Andreas Fault Systems are in close proximity (all within 30 miles) of the site creating the high likelihood of groundshaking during earthquakes. However, surface fault rupture is considered to be unlikely at the project site because of the well-delineated fault lines through the Imperial Valley as shown on USGS and California Geological Society maps. Furthermore, no evidence of active or potentially active faulting was found during the site investigation; therefore, the project site is not considered subject to significant ground rupture conditions.

The proposed site structures would be designed in accordance with the California Building Code (CBC) for a "Design Basis Earthquake" (DBE) and with the appropriate near-source factors. The DBE is defined as the motion having a 10 percent probability of being exceeded in 50 years. Project foundations and structures would be constructed to the appropriate standards dictated by the California Building Code to limit hazards associated with such seismic conditions.

Impact Determination

Implementation of the Project would not result in a substantial risk to life or property from a rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, or through strong seismic groundshaking. Therefore, impacts associated with faults and seismicity would be considered to be less than significant.

Mitigation Measures
No mitigation is required.

Residual Impact
Impacts would be less than significant.

Threshold GEO-2: Would the Project result in a substantial risk to life or property from a seismic-related ground failure, including liquefaction?

Discussion
Evaluation of liquefaction potential at the site indicates that thin (1 to 5 feet thick), isolated, interbedded layers of silt, sand silt, silty sand at a depth between 14 and 50 feet may liquefy under seismically induced groundshaking, potentially resulting in an estimated 2 to 3 inches of deep seated settlement. There is a 14-foot layer of non-liquefiable soils (clay) above any potentially liquefiable soil; therefore, it is unlikely that there will be rapid deformation or punching bearing failures of the surface soils should liquefaction occur. However, without proper engineering of the soils and foundations, a significant impact may occur.

Impact Determination
Impact GEO-1: The Project would potentially result in a substantial risk to life or property from a seismic-related ground failure, including liquefaction. The presence of potentially liquefiable soil is considered a significant impact without appropriate remediation actions.

Mitigation Measures
Liquefaction can be mitigated via ground improvement methods such as deep soil mixing (cement), vibro-compaction, vibro-replacement, geopiers, stone columns, compaction grouting, or deep dynamic compaction. Other means to mitigate liquefaction damage include either a deep foundation system, rigid mat foundations and grade-beam reinforced foundations that can withstand some differential movement or tilting, but may not protect fracturing of buried utilities.

Landmark Inc. recommends the designer choose one of the following two options for structural foundations and each has been made a mitigation measure:

MM GEO-1a: Foundations that use grade-beam footings to tie floor slabs and isolated columns to continuous footings (conventional or post-tensioned), **or**

MM GEO-1b: Structural flat-plate mats, either conventionally reinforced or tied with post-tensioned tendons.

These measures reduce the potential effects of liquefaction-induced settlements by making the structures more able to withstand differential settlement. Additional mitigation measures are as follows:

MM GEO-2: A site-specific subsurface investigation and liquefaction settlement analysis was performed prior to development of the project site by Landmark Inc. with results included in this report and made available in Appendix F. Findings and recommendations of the report shall be incorporated into the final project design.

MM GEO-3: The project shall require foundations and slabs-on-grade designed to resist expansive soil heave (CBC Sections 1815 and 1816). The CBC design method requires grade-beam stiffening

of floor slabs at a maximum spacing of 16 feet on center, grade-beam stiffened post-tensioned slabs or flat-plate structural slabs.

If foundation designs are utilized which do not include provisions for expansive soil, an engineered building support pad consisting of a minimum of 4.0 feet of granular soil (meeting USCS classifications of SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and 5 to 35% passing the No. 200 sieve) or lime treated soil (content established by the Eads-Grim Method with a resulting maximum Expansion Index of 15 after lime addition), placed in maximum 8-inch lifts (loose), compacted to a minimum of 90% of ASTM D1557 maximum density at 2% below to 4% above optimum moisture, should be placed below the bottom of the slab.

Design construction of site improvements should include provisions to mitigate clay soil movement. Additionally, the weak clay subgrade soil requires thickened structural sections for pavements.

Additional information on clearing, grubbing, building pad preparation, trenching, backfilling, moisture control and drainage is available in Appendix F. All site preparation and fill placement should be continuously observed and tested by a representative of a qualified geotechnical engineering firm in order to detect undesirable materials or conditions and soft areas that may be encountered in the construction process.

MM GEO-4: All buildings are required to meet the Uniform Building Code standards.

MM GEO-5: Rigid foundations (10 to 12 inches thick) are required to support the structures on-site.

MM GEO-6: Structural foundations should be designed to limit differential movement and/or swell to less than one inch. This can be accomplished with shallow spread foundations, flat plate structural mats, or grade-beam reinforced foundations (see Appendix F).

MM GEO-7: Due to moderate to severe levels of sulfate ion and chloride ion concentrations the project shall require special concrete mixes and protection of embedded steel components when concrete and/or steel (and other buried metallic conduits) is placed in contact with native soil. A minimum of 6.0 sacks per cubic yard of concrete (4,500 psi) of Type V Portland Cement with a maximum water/cement ratio of 0.45 (by weight) should be used for concrete placed in contact with native soil on this project. Mitigation of corrosion on steel can be achieved by using steel pipes coated with epoxy corrosion inhibitors, asphaltic and epoxy coatings, cathodic protection or by encapsulating the portion of the pipe lying above groundwater with a minimum or 3 inches of densely consolidated concrete. No metallic water pipes or conduits should be placed below foundations.

MM GEO-8: Erosion control requirements shall be incorporated into the project design at the time of development to mitigate this concern. These measures include landscaping and design per the Storm Water Pollution Prevention Plan (SWPPP).

Residual Impact

Implementation of the mitigation measures MM GE-1 through MM GE-8, as listed above, would reduce geologic impacts related to liquefaction to a less-than-significant level.

Threshold GEO-3: Would the Project result in a substantial risk to life or property from being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

Discussion
The project site is, in general, underlain by clays of high expansion potential. The soil on-site is highly corrosive to metals and contains sufficient sulfates and chlorides that require special concrete mixes and protection of embedded steel components when concrete is placed in contact with native soil. However, if the native soils are replaced with imported granular soils with low sulfate and chloride content, no special concrete mixes are required.

Impact Determination
Impact GEO-2: The Project would result in a substantial risk to life or property from being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property as the project site is, in general, underlain by clays of high expansion potential. Due to the possibility for liquefaction and expansion of soils, this impact is considered to be significant.

Mitigation Measures
Implementation of Mitigation Measures MM GEO-1 through MM GEO-8, as listed above.

Residual Impact
Implementation of mitigation measures MM GEO-1 through MM GEO-8 would reduce impacts from Groundwater/Liquefaction to a less-than-significant level.

Threshold GEO-4: Would the Project result in a substantial risk to life or property from Geologic hazards such as landslides?

Discussion
No ancient landslides are shown on geologic maps of the region and no indications of landslides were observed during site investigation. The hazard of landsliding is unlikely due to the regional planar topography (Landmark 2007).

The project site is not located in proximity to any known volcanically active area. The site is not situated near any large bodies of water.

Impact Determination
The Project would not result in a substantial risk to life or property from Geologic hazards such as landslides. Impacts related to land sliding are considered less than significant.

Mitigation Measures
No mitigation would be required.

Residual Impacts
Impacts would be less than significant.

4.6

HAZARDS AND HAZARDOUS MATERIALS

This section describes the existing conditions at the project site as they relate to hazards and hazardous materials. Following the existing conditions discussion, the regulatory setting is described followed by an analysis of the potential safety hazards and hazardous materials impacts that may result from implementation of the proposed Project. Impacts are discussed in terms of the potential for the release of, or exposure to, hazardous materials and other hazards. This section summarizes information presented for the site in the Phase I Environmental Site Assessment (ESA) prepared by GS Lyon Consultants Inc. (September 2007). This document is provided in full as Appendix G to this EIR.

4.6.1 Existing Site Conditions Related to Hazards and Hazardous Materials

The project site is located in the southeastern part of the City of Brawley, Imperial County. The project site is currently used for farming activities, including farmland, canals, and some residential areas. Nearly the entire project site has been cultivated, and major surface disturbance is apparent. There are two currently occupied residential areas within the project site. A ranch complex, consisting of six buildings, is located at the southeast corner of the intersection between Highway 78 and Best Avenue. In addition, two houses with a coop in between are located near the east end of Malan Road within the project site. Portions of IID Best Canal and Bryant Drain are within the project area.

The Brawley Municipal Airport is located approximately one mile north of the proposed Project site and operates in accordance with the Brawley Municipal Airport Master Plan (AMP), prepared in May 2003. The project site is outside the airport's area of influence, its flight path, and is not subject to its land use compatibility guidelines.

Historical uses in the site vicinity include agricultural land, several single-family residences, and a small commercial area to the east. The Phase I ESA reviewed historic aerial photographs of the project area taken from 1949 to 2002 and obtained from the IID. The 1949 photograph showed the site being composed of agricultural fields and three ranch houses with surrounding properties also being agricultural

fields while a few buildings and homes were west of the site. Photographs from 1953, 1965, and 1972 are similar.

In the 1979 photograph the site was similar to those prior with a shop being built south of the ranch house on the northwest corner of the site and a mobile home placed south of the ranch house on the central eastern area of the site. Subsequent photographs in 1981, 1992, 1996, and 2002 are similar.

A leaking underground storage tank that was filled with automotive gasoline was found on the property of S&J Gas & Oil Company, 1686 E. Main Street, across Best Avenue beyond the northwest corner of the site. The site was remediated and closed in 1988. However, soils tested on that property in 2004 and 2007 showed low concentrations of total recoverable petroleum hydrocarbons and volatile fuel hydrocarbons/BTEX.

4.6.1.1 Site Reconnaissance

A site reconnaissance was performed by GS Lyon Consultants Inc. on August 15, 2007. The site reconnaissance involved recording observations of the site's existing environmental condition. The obvious indicators of potential sources of hazardous waste from land use, such as ponds, pits, sumps, landfills, and heavy industry or oil-related developments were not observed at the site or in the site vicinity. The reconnaissance concluded that there was no evidence of hazardous materials or hazardous waste on the project site.

4.6.2 Regulatory Setting

4.6.2.1 Federal Regulations

The federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List (NPL). CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

4.6.2.2 State Regulations and Regulatory Agencies

California Hazardous Waste Control Law

The California Hazardous Waste Control Law (HWCL) is administered by the CalEPA to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until EPA approves the California program, both state and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

Hazardous substances are defined by state and federal regulations to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be considered hazardous. CCR, Title 22, Chapter 11, Article 2, Section 66261, provides the following definition:

> "A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed."

According to Title 22 (Chapter 11, Article 3, CCR), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, or contaminated or is being stored prior to proper disposal.

Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are special classes of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances are hazardous because of their flammable properties; gasoline, hexane, and natural gas are examples of ignitable substances. Corrosive substances are chemically active and can damage other materials or cause severe burns upon contact; examples include strong acids and bases such as sulfuric (battery) acid or lye. Reactive substances may cause explosions or generate gases or fumes; explosives, pressurized canisters, and pure sodium metal (which react violently with water) are examples of reactive materials. Soil that is excavated from a site containing hazardous materials would be considered a hazardous waste if it exceeded specific CCR Title 22 criteria. Remediation of hazardous wastes found at a site is required if excavation of these materials is performed; it may also be required if certain other activities are proposed. Even if soil or groundwater at a contaminated site does not have the characteristics required to be defined as hazardous waste, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking lead jurisdiction.

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) is charged with the task of restoring, protecting, and enhancing the environment; ensuring public health, environmental quality, and economic vitality by regulating hazardous waste; conducting and overseeing cleanups; and developing and promoting pollution prevention. DTSC meets these goals through implementing programs aimed at overseeing cleanups; preventing releases by ensuring waste is properly generated, handled, transported, stored and disposed of; enforcing laws against those who inappropriately manage hazardous wastes; promoting pollution reduction; encouraging reuse and recycling; performing toxicological evaluations on a site; and involving the public in DTSC's decision making.

Government Code Section 65962.5 requires DTSC, the State Department of Health Services, SWRCB, and the California Integrated Waste Management Board to compile and annually update lists of hazardous waste sites and land designated as hazardous waste property throughout the state. The Secretary for Environmental Protection is to consolidate the information submitted by these agencies and distribute it to each city and county where sites on the lists are located. Before the lead agency accepts an application for any development project as complete, the applicant shall consult these lists to determine if the proposed project site is located on any of the lists compiled by these agencies.

California Public Resources Code

CEQA Statute (California Public Resources Code, Division 13 Environmental Protection) Section 21092.6, *Location of Projects on Hazardous Waste Sites List*, directs the lead agency to consult the lists compiled pursuant to Section 65962.5 of the Government Code to determine whether a project and any alternatives are located on a site that is included on any list.

To comply with CEQA requirements in providing information about the location of hazardous materials release sites, the Hazardous Waste and Substances Sites (Cortese) List is a document used by the State, local agencies and developers. Government Code section 65962.5 requires the California EPA to annually an update the Cortese List. DTSC is accountable for a portion of the information contained in the Cortese List. Also, State and local government agencies are required to provide further hazardous material release information to be complied into the Cortese List.

4.6.2.3 Local Plans and Regulations

Brawley Municipal Airport Land Use Plan

The Brawley Municipal Airport is located approximately one mile north of the proposed Project site and operates in accordance with the Brawley Municipal AMP, prepared in May 2003. The AMP report provides a brief summary of conclusions and recommendations, a discussion of existing airport facilities, a prediction of airport activity until the year 2017, a description of airport facilities needed beyond those currently available, and a discussion of land use compatibility implications relative to noise and safety.

4.6.3 Impact Analysis

4.6.3.1 Methodology

Impacts are discussed in terms of the potential for the release of, or exposure to, hazardous materials and other hazards. The analysis summarizes information presented on the site in the Phase I Environmental Site Assessment (ESA) prepared by GS Lyon Consultants Inc. (September 2007). This document is provided in full as Appendix G to this EIR.

4.6.3.2 Thresholds of Significance

Thresholds for hazards and hazardous materials are based on Appendix G of the State CEQA Guidelines. A discussion of potential impacts is limited to those issue areas determined in the Initial Study as having a potentially significant impact. Those issue areas that were determined to have a "Less Than Significant Impact" or "No Impact" are not discussed below. Please refer to the Initial Study Checklist analysis for those issue areas not presented in the analysis below. The proposed project would be considered to have a significant environmental impact if it would:

HAZ-1: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or

HAZ-2: Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area.

4.6.3.3 Impacts and Mitigation

Threshold HAZ-1: Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Discussion

Construction of the project could result in exposing people to dust and pesticide applications from nearby agricultural operations. Such exposure is typical throughout Imperial Valley agricultural areas and would not be significantly greater for the proposed project. In addition, the Project construction would be required to comply with the IVAPCD fugitive dust rule.

Construction equipment that would be used to build the proposed project has the potential to release oils, greases, solvents, and other finishing materials through accidental spills. Spill or upset of these materials would have the potential to have an effect on surrounding land uses; however, federal, state, and local controls have been enacted to reduce the effects of any potential hazardous materials spills.

Pesticides typical to agricultural crop applications may be present in surface soils on the project site. In addition, historical use of pesticides on adjacent properties is probable. However, concentrations of the

pesticides at the site are likely to be well below regulatory limits of 1700 parts per billion (ppb) determined by the State Department of Toxic Substance Control because samples taken from similar agricultural sites in the immediate area typically show only trace amounts in the range of 100-150 ppb (per. comm. on 5/8/08 with Steven Williams, Senior Engineering Geologist at GS Lyon and Associates).

Due to the age of the structures identified on the site asbestos containing material and lead based paint may be present. Abatement prior to demolition may be required in accordance with DTSC and SCAQMD. Under these guidelines, removal of these hazardous materials to a Class I disposal facility is required. Furthermore, if asbestos is found on-site, cleanup would be conducted in accordance with regulations in the California Code of Regulations for the removal, transport and disposal of asbestos, as well as SCAQMD Rule 1403 Asbestos Emissions from Demolition/Renovation Activities.

The three ranch houses likely have had septic tanks, leach fields for disposal of sanitary wastewater, and underground concrete water cisterns for the storage of raw water. It is probable that septic systems are used at the ranch houses on the site although they are not noted in the public record due to the age of the structures. If septic systems are present on-site, they would be abandoned in accordance with all applicable regulations for removal and disposal under the oversight of the City of Brawley and County of Imperial.

A leaking underground storage tank that was filled with automotive gasoline was found on the property of S&J Gas & Oil Company, 1686 E. Main Street, across Best Avenue beyond the northwest corner of the site. The site was remediated and closed in 1988. However, soils tested on that property in 2004 and 2007 showed low concentrations of total recoverable petroleum hydrocarbons and volatile fuel hydrocarbons/BTEX. Any potential leaching would move NW with the groundwater flow away from the project site (per. comm. on 5/8/08 with Steven Williams, Senior Engineering Geologist at GS Lyon and Associates).

Impact Determination

There are no other known components of the proposed Project that would result in the release of significant quantities of hazardous materials into the environment. Impacts related to the release of hazardous materials during operation and construction of the project would be less than significant. Therefore, the Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Mitigation Measures

No mitigation is required.

Residual Impact

Impacts would be less than significant.

Threshold HAZ-2: Would the Project be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area.

Discussion

The project is located approximately one mile south of the Brawley Municipal Airport (KBWC), located at 948 Ken Bemis Drive. As detailed in the Brawley Municipal Airport Land Use Plan, the proposed project would not be located within any noise sensitive contours and would not be located within any of the compatibility zones established for areas surrounding the airport, which assess safety issues relative to the airports approach zones. As such, the proposed Project would not conflict with the long-range goals of the airport land use plan, and impacts pertaining to airport flight hazards would remain less than significant.

Impact Determination

The Project would not result in a safety hazard for people residing or working in the project area. Impacts related to the operation of the Brawley Municipal Airport on the proposed Project would be less than significant.

Mitigation Measures

No mitigation is required.

Residual Impact

Impacts would be less than significant.

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4.7

HYDROLOGY AND WATER QUALITY

The following section provides general hydrological information for the proposed site location and is based on documents from the City of Brawley, Imperial County, and Imperial Irrigation District. The Rancho-Porter Specific Plan, Rancho-Porter Subdivision Master Drainage Study, and Rancho-Porter Water Supply Assessment, all prepared by Development Design and Engineering in 2008, were also reviewed for this section. These studies are included as Appendix H and Appendix J, respectively, of this EIR.

4.7.1 Hydrologic and Water Quality Conditions

4.7.1.1 Regional Setting

Most of the flat irrigated valley, with its low-lying canal/drain systems, is subject to minor, shallow flooding and ponding due to the lack of local topographic relief, occasional intense storm events, and low soil infiltration rates that produce rapid runoff flows. Average annual precipitation ranges from less than three inches over a majority of the valley.

The City of Brawley's drainage system is located within its urban area and the City is responsible for planning, construction, and maintenance of the system. Approximately half of the City's drainage system is currently combined with the City's sewer system. This has caused the wastewater plant to overload its capacity during rainstorm events. The areas of the drainage system that are combined with the City's sewer system are generally located in older areas within the City. The City desires the separation of these systems and the conveyance of the storm drainage to a safe outlet.

Water used to irrigate virtually the entire Imperial Valley originates from the Colorado River. Local drainage patterns within the valley have been altered through agricultural activities. The IID maintains hundreds of irrigation drainage structures, which collect surface water runoff and subsurface drainage from thousands of miles of agriculture drains and channels that flow into the New River and Alamo River, which ultimately drain into the Salton Sea. The canals and laterals are often open and unprotected.

Ninety-seven percent of the water IID transports is used for agriculture while the remaining three percent is delivered to seven municipalities, one private water company and two community water systems as well as a variety of industrial uses and rural homes or businesses in Imperial County (IID 2006). Eventually, water is treated and then distributed to residential water customers. After water has been utilized, run-off from agricultural and residential uses is distributed through the IID agricultural drains and into the Salton Sea via the New River or the Alamo River.

4.7.1.2 Local Setting

Hydrology

The project site is located within the Imperial Valley Basin of the Colorado Desert Hydrologic Region, south of the Salton Sea. Major hydrologic features of the region include the New River ~~and the Central Main Canal~~, located west of the site, and the Alamo River, located east of the site. These features all flow in a south/north direction toward the Salton Sea. The rivers were formed in the mid to late 1800s when the Colorado River occasionally escaped its natural channel and flowed northward towards the present day Salton Sea. The Central Main Canal is a manmade feature that empties discharged runoff and treated wastewater from the City into the New River. The New River conveys agricultural irrigation drainage water from farmlands, surface runoff, and a minor amount of treated municipal and industrial wastewaters from the Imperial Valley to the Salton Sea.

Storm water drainage within the City of Brawley utilizes a combination of storm drain piping into the New River from IID main and lateral drains and retention basins. All storm drains will flow into the existing IID drainage facilities. Originally these drains were intended to convey only return flows from agricultural activity. IID allows urban development run-off, but limits the amount of storm water run-off that an urban development can discharge into their drain system to mitigate downstream flooding.

Storm drain facilities are planned for the project area to handle general urban run-off including three inches of rain within a 24-hour storm. The general urban run-off, often referred as "nuisance run-off," can be piped directly into a treatment area, and then into the IID drainage system. Various sizes and types of treatment areas can be located within open space areas, within commercial and industrial landscaping areas or adjacent to public parking lots.

Water Quality

Agricultural activity occurs in the area surrounding the project site and has historically occurred on the site. These activities generally contribute pesticides, herbicides, nutrients, and sediment to receiving waters. Pollutant sources from urban areas include parking lots and streets, rooftops, exposed earth at construction sites, and landscaped areas. Urban runoff from streets and residences is also a common source of sediment, hydrocarbons, metals, pesticides, bacteria, and trash.

The Colorado Regional Water Quality Control Board (RWQCB) adopted an updated Clean Water Act 303 (d) list, which in part identifies the quality of the waters of the Salton Sea, Alamo River, New River, and Imperial Valley agricultural drains as impaired by discharges of wastes from non-point sources, primarily of agricultural origin (State Water Resources Control Board 2007). The Alamo River and New

River are the two largest drains in this region that are significantly impaired by agricultural pollution. Other sources of non-point pollution include abandoned mines, storm water runoff, boating activities, alterations to land (e.g., urban development), and animal production activities.

Federal CWA Section 303(d) establishes the Total Maximum Daily Load (TMDL) process to assist in guiding the application of state water quality standards, requiring states to identify streams in which water quality is impaired (i.e., affected by the presence of pollutants or contaminants) and to establish the TMDL, or the maximum quantity of a particular constituent that a water body can assimilate without experiencing an adverse effect. The Colorado River Basin RWQCB 2002 List Of Water Quality Limited Segments identifies the Salton Sea as "impaired" for nutrients, salt, and selenium; and identifies the Alamo River and Imperial Valley Agricultural Drains system as "impaired" for pesticides, sedimentation/siltation, and selenium.

Groundwater

The project is located within the Imperial Valley Groundwater Basin sub-basin. The basin has two major aquifers, an upper and a lower, separated by a semi-permeable aquatard averaging 60 feet in thickness. Recharge to the aquifer is primarily from deep percolation of applied irrigation water and irrigation return flows. Other recharge sources are deep percolation of rainfall and surface runoff, underflow into the basin, and seepage from unlined canals that traverse the valley. Groundwater within the basin generally flows toward the axis of the valley and then northwestward towards the Salton Sea. Groundwater levels vary widely within the basin due to differing hydraulic heads and the localized confining clay beds in the area.

Approximately 7,000 acre-feet per year (AFY) of groundwater recharge comes from the New River, which drains the Mexicali Valley. This groundwater is related to surface flow in the highly polluted New River and negatively affects groundwater quality in the basin. The New River is listed as impaired under the CWA Section 303(d) for bacteria, dissolved oxygen, nutrients, pesticides, sedimentation/siltation, trash, and volatile organic compounds.

According to the Water Supply Assessment (see Appendix J), groundwater in the Imperial Unit is of poor quality and is unsuitable for domestic or irrigation use. Total dissolved solids (TDS) range from hundreds to more than 10,000 milligrams per liter (mg/l). Generally, the groundwater's fluoride concentration is higher than recommended for during water, while its boron concentration exceeds that recommended for certain agricultural crops.

Flooding

Flooding occurs in varying degrees throughout Imperial County. Floodwater rise occurs either from sudden downpours or as a result of slow, heavy precipitation. Surface levels of the Salton Sea fluctuate yearly but recent rising surface elevations are causing serious drainage problems in adjacent areas. Most of the flat irrigated valley, with its low-lying canal/drain systems, is subject to minor, shallow flooding and ponding due to the lack of local topographic relief, occasional intense storm events, and low soil infiltration rates that produce rapid runoff flows. Development in the valley increases the amount of impervious surfaces and adds to the runoff that can result in downstream flooding. The IID currently limits the capacity of its drainage system in order to reduce downstream flooding potential from

combined agricultural and storm runoff. A project-specific preliminary drainage plan is required to address these issues.

4.7.2 Regulatory Setting

4.7.2.1 Federal Regulations

Clean Water Act

In 1972, the Federal Water Pollution Control Act (later referred to as the Clean Water Act) was amended to require National Pollutant Discharge Elimination System (NPDES) permits for the discharge of pollutants to waters of the United States from any point source. In 1987, the Clean Water Act was amended to require that the USEPA establish regulations for permitting under the NPDES permit program of municipal and industrial stormwater discharges. The EPA published final regulations regarding stormwater discharges on November 16, 1990. The regulations require that municipal separate storm sewer system (MS4) discharges to surface waters be regulated by an NPDES permit.

In addition, the Clean Water Act requires the states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, fishing etc.), along with water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations or levels of pollutants—such as lead, suspended sediment, and fecal coliform bacteria—or narrative statements that represent the quality of water that supports a particular use. Because California has not established a complete list of acceptable water quality criteria, EPA established numeric water quality criteria for certain toxic pollutants in waters with human health or aquatic life designated uses through the California Toxics Rule.

Water bodies not meeting water quality standards are deemed "impaired" and, under Clean Water Act Section 303(d), are placed on a list of impaired waters for which a TMDL must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL is allocated among current and future pollutant sources to the water body.

California Toxics Rule

The California Toxics Rule is a federal regulation issued by the EPA that provides water quality criteria for toxic pollutants in waters with human health or aquatic life as designated uses in California. Not all waters receiving flows from the proposed project site, such as Limestone Creek, are specifically designated with human health or aquatic life uses. However, other waters, such as Irvine Lake, Santiago Creek, and Peters Canyon Reservoir, do have such designated uses. Although California Toxics Rule criteria do not apply directly to discharges of stormwater runoff, they can provide a useful benchmark to assess the potential impacts to the water quality of receiving waters from potential project stormwater

runoff discharges. Here, the criteria are used as benchmarks to evaluate the potential impacts of stormwater runoff to the receiving waters of the project.

California Toxics Rule criteria apply to the receiving water body and must be calculated based upon the probable hardness values of the receiving waters, where higher hardness values lead to copper, lead, and zinc being more likely to be bound (complexed) with other components, which reduces the bioavailability, and resultant toxicity, of these metals.

The California Toxics Rule establishes acute and chronic surface water quality standards for certain water bodies, as discussed above. Acute criteria provide benchmarks for the highest concentrations above which aquatic life can be exposed for a short period of time without deleterious effect. Due to the intermittent nature of stormwater runoff (especially in Southern California), the acute criteria are considered to be more applicable to stormwater conditions than chronic criteria, and are therefore used as benchmarks in assessing project runoff. Chronic criteria provide benchmarks for the highest concentrations of a particular pollutant above which aquatic life can be exposed for an extended period of time (e.g., four days, or more) without deleterious effect, and are therefore used as benchmarks for reservoir water quality.

4.7.2.2 State of California Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, passed in 1969, provides the statutory authority for SWRCB and the RWQCBs to regulate water quality. It was amended in 1972 to extend the federal Clean Water Act authority to these agencies (see Clean Water Act above). The Porter-Cologne Water Quality Control Act established the SWRCB and divided the state into nine regions, each overseen by RWQCBs. The SWRCB is the primary state agency responsible for protecting the quality of California's surface and groundwater supplies, but much of the daily implementation of water quality regulations is carried out by the nine RWQCBs.

Construction General Permit

Pursuant to Clean Water Act Section 402(p)(3)(A), which requires regulations for permitting of certain stormwater discharges, the SWRCB has issued a statewide general NPDES Permit for stormwater discharges from construction sites (NPDES No. CAS000002, SWRCB Resolution No. 2001-046; Modification of Water Quality Order 99-08-DWQ, SWRCB NPDES General Permit for Stormwater Discharges Associated with Construction Activity, adopted by the SWRCB on April 26, 2001).

Dischargers whose projects disturb 1 or more acres of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a SWPPP. The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP (SWQCB 2008a).

MS4 Permit

The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not (SWQCB 2008b).

4.7.3 Impact Analysis

4.7.3.1 Methodology

The analysis below is based on engineering standards established by the City of Brawley, Imperial County, and Imperial Irrigation District and the water quality regulations of the RWQCB, Region 7. The Rancho-Porter Specific Plan, Rancho-Porter Subdivision Master Drainage Study, and Rancho-Porter Water Supply Assessment, all prepared by Development Design and Engineering in 2008, were also reviewed for the analysis below. The drainage study and water supply assessment are included as Appendix H and Appendix J of this EIR.

4.7.3.2 Thresholds of Significance

For this analysis, an impact pertaining to hydrology or water quality would be considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and state CEQA Guidelines Appendix G (14 CCR 15000 et seq.). The effects of the proposed project on water quality and hydrology are considered to be significant if the project would:

WQ-1: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in (1) substantial erosion or siltation onsite or offsite or (2) substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite; or

create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, provide substantial additional sources of polluted runoff, or violate waste discharge requirements;

WQ-2: Violate any water quality standards or result in other substantial degradation of water quality;

WQ-3: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?)

WQ-4: Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary Map or Flood Insurance Rate Map or other flood hazard delineation map; place structures within a 100-year flood hazard area that would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury, or death involving flooding including flooding as a result of the failure of a levee or dam.

The following potential impact identified in the Initial Study prepared for the proposed project (Appendix B) was found to have "no impact" and is not considered in the analysis below:

- Inundation by seiche, tsunami, or mudflow.

4.7.3.3 Impacts and Mitigation Measures

Threshold WQ-1: Would the Project result in an impact on drainage such that substantial erosion or siltation onsite or offsite would occur, or (2) would substantially increase the rate or amount of surface runoff resulting in flooding onsite or offsite, (3) or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, provide substantial additional sources of polluted runoff, or violate waste discharge requirements?

Discussion

The project would entail earthwork and construction activity on the site during the temporary construction phases. Earthwork could cause soil erosion and sedimentation to enter the Bryant Drain, which bisects the project site into north and south along what is planned as Malan Street, and adjacent canals including the Best Canal ~~and Best Drain~~. As part of the grading plan development and compliance with RWQCB Region 7 regulations and the City's adopted Storm Water Management Plan (SWMP), including but not limited to the approval and implementation of a SWPPP, the project would implement engineering standards to reduce or treat water pollutants and soil erosion during and after construction. All retention and storm drain systems would be required to comply with the IID and City of Brawley engineering standards.

As stated in the Specific Plan prepared for this project and detailed in the drainage plans, all urban runoff will be piped into the retention facilities through a storm drain system consisting of inlets and outlets through-out the project area. To reduce the threat of flooding, retention basins for a 100-year storm (assuming a total of three inches of rain) would be required within the project area. Assuming the

average depth of 5.04 feet, as identified by the Rancho-Porter Preliminary Drainage Study (see Appendix H), the area for the retention basin needed is 16.29 net acres. All storm drain systems shall be designed to the City of Brawley and RWQCB, Region 7, standards. Retention basins within commercial areas should be combined with landscaping; however the retention basins for the commercial sites would be done separately on-site.

Impact Determination
Guidelines for the establishment of retention basin facilities within the project area are listed in the Rancho-Porter Specific Plan and would be implemented in the required engineering drainage plans. These guidelines include regulations on landscaping criteria, design of retention basins, and plans for long-term maintenance. However, once the final design has been prepared, and prior to its approval, a detailed drain hydraulic analysis to address pipeline design is required. Thus, the project proponent would be required to prepare a detailed drain hydraulic analysis to address stormwater discharge into IID's drainage system and determine final pipeline design. The analysis shall address the reduction in drainage flows if present. With implementation of these guidelines for the establishment of retention basin facilities, impacts related to drainage on and around the project site would be less than significant.

Mitigation Measures
No mitigation is required.

Residual Impacts
Impacts would be less than significant.

Threshold WQ-2: Would the Project violate any water quality standards or result in other substantial degradation of water quality?

Discussion
As discussed above, grading and construction activities would potentially lead to soil erosion and sedimentation of the Bryant Drain and the associated regional drainage system, affecting not only hydrology, but also water quality. Grading and construction activity would also potentially lead to pollution of the drainage system from hazardous substances (e.g., oil and gasoline) due to leaking vehicles or improperly used/stored substances. Such pollution would affect surface water and ground water.

The project would entail trenching and excavation work during the construction phase that may reach a depth below the groundwater table, which would expose an immediate and direct path to the groundwater basin for contaminants. Primary construction-related contaminants that could reach groundwater would include oil and grease, and construction-related hazardous substances. In addition, discharge of construction-related dewatering effluent could result in the release of contaminants to surface or groundwater.

Permanent impacts include the use of fertilizers and general household pesticides/chemicals during the occupational phase of the project. Residential land uses are potential contributors of oil, grease, metals, and trash to surface waters and storm water drainage facilities.

The project would entail the permanent installation of infrastructure such as water supply and wastewater pipelines and related infrastructure. The possibility of a pipeline rupturing due to exceedances of pipeline or tank capacity, improper design, installation, maintenance, seismic activity, or other catastrophic events

could impact water quality resulting in increased erosion and sediment, as well as discharge of any contaminants contained in the water released from the pipeline (e.g., sewage from influent pipelines). The infrastructure systems would be designed and engineered with sufficient capacity to accommodate anticipated peak flows, minimizing the potential for upset. In addition, infrastructure would be designed to relevant seismic and other standards to minimize the potential for upset from seismic activity or other geologic hazards.

Impact Determination

Impact WQ-1: Impacts to surface water quality and groundwater quality due to construction-related earth disturbing activities and construction-related hazardous substances would be considered significant.

Mitigation Measures

MM WQ-1: Comply with NPDES Construction General Permit and City's of Brawley Stormwater Program. To reduce or eliminate construction-related water quality impacts, before onset of any construction activities, the City shall require that construction contractors obtain coverage under the NPDES Construction General Permit and comply with the construction requirements of the City's Stormwater Program. The City will be responsible for ensuring that construction activities comply with the conditions in the permit and program, which will require development of a SWPPP, implementation of BMPs identified in the SWPPP, and monitoring to ensure that effects on water quality are minimized.

As part of this process, the City will require the implementation of multiple erosion and sediment control BMPs in areas with potential to drain to surface water. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure may include, but are not limited to, the following measures:

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Drainage facilities in downstream offsite areas will be protected from sediment using BMPs acceptable to the County and the RWQCB.
- Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

Final selection of BMPs will be subject to review by the City. The City will verify that a notice of intent (NOI) and a SWPPP have been filed before allowing construction to begin. The City or its agent shall perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require that steps be taken to gain compliance.

MM WQ-2: Implement a Spill Prevention and Control Program. The City will require that contractors develop and implement a Spill Prevention, Control and minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities. The program shall be completed before any construction activities begin.

The City shall review and approve the SPCCP before onset of construction activities. The City will routinely inspect the construction area to verify that the measures specified are properly implemented

and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require that steps be taken to gain compliance.

The federal reportable spill quantity for petroleum products, as defined in the EPA's CFR (40 CFR 110) is any oil spill that (1) violates applicable water quality standards, (2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or (3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor's superintendent will notify the City and the City will contact the appropriate safety and clean-up crews to ensure the SPCCP plan is followed. A written description of reportable releases must be submitted to the RWQCB. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases.

MM WQ-3: Implement measures to maintain groundwater or surface water quality. If an appreciable spill has occurred and it is determined that project activities have adversely affected surface or groundwater quality, a detailed analysis will be performed by a Registered Environmental Assessor to identify the likely cause of contamination. This analysis will conform to the American Society for Testing and Material standards, and will include recommendations for reducing or eliminating the source or mechanisms of contamination. Any existing agriculture wells that are abandoned will need to be properly destructed. Prior to destruction of abandoned wells, a sample of the upper most water level column should be sampled for contaminants such as oil. The presence of oil could be an indicator that this lubricating oil was used to maintain the well pump. The oil should be removed from the well prior to placement of fill material for destruction. In addition, the oily water will need to be handled in accordance with federal, state, and local laws. Based on this analysis, the contractors will select and implement any other measures to control contamination, with a performance standard that groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the City before they are implemented.

MM WQ-4: Provisions for dewatering. Before discharging any dewatered effluent to surface water, the City shall require contractors to obtain an NPDES permit and WDRs from the RWQCB. Depending on the volume and characteristics of the discharge, coverage under the RWQCB's General Construction Permit is possible. As part of the permit, the permittee will design and implement measures as necessary so that the discharge limits are met. As a performance standard, these measures will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. Implemented measures may include retention of dewatering effluent until particulate matter has settled before it is discharged, use of infiltration areas, and other BMPs. Final selection of water quality control measures will be subject to approval by the City.

The City will verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. The City or its agent shall perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.

MM WQ-5: Implement Best Management Practices to maximize storm water quality. Residential land uses are potential contributors of oil, grease, metals, and trash, as well as contribute some pesticides from lawn and garden maintenance. To reduce or eliminate water quality effects

from polluted runoff from the Rancho-Porter residential development, the applicant shall implement multiple BMPs in areas with potential to drain into storm drainage systems and/or surface waters.

As required by the City and the IID, the project will utilize BMPs in the form of detention basins and end-of-pipe stormwater treatment systems to reduce pollutants in stormwater and dry weather runoff to the maximum extent practicable. The City shall inspect the site following construction to ensure that all identified BMPs have been properly installed. The project shall adopt a regular maintenance and monitoring schedule to ensure that these BMPs function properly during project operations. If necessary, the City shall require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

Residual Impacts
Implementation of the mitigation measures listed above would reduce all of the significant water quality impacts to a less-than-significant level.

Threshold WQ-3: Would the Project deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level?

During construction, groundwater recharge would increase due to the use of water for construction activities. During operation, the increased impervious surfaces on the project site would slightly reduce the amount of direct percolation of water into the groundwater table. This would not significantly deplete the groundwater supply in the region. Furthermore, the proposed project would not use groundwater as a water supply source.

Impact Determination
The project would not significantly deplete groundwater supply in the region since construction activities would increase groundwater recharge and operation of the proposed Project would slightly reduce the amount of recharge of groundwater. Therefore, impacts would be less than significant.

Mitigation Measures
No mitigation measures are required.

Residual Impacts
Impacts would be less than significant.

Threshold WQ-4: Would the Project place housing or other structures in a 100-year flood zone, or expose people to health risks from flooding?

The project site is not within a 100-year flood zone or in an area that could be subject to inundation by levee or dam failure. The project would also not contribute to any flooding issues on adjacent properties. Therefore, no such impact would occur.

Impact Determination
No impacts from flooding would occur since the site is not within a 100-year flood zone.

Mitigation Measures
No mitigation is required.

Residual Impacts
No impact would occur.

4.8

LAND USE

This section contains a discussion of existing land uses and investigates land use compatibility between the proposed Rancho Porter Project and local plans and policies pertinent to the City and County, the Brawley Municipal Airport, as well as the Southern California Association of Governments (SCAG) and the LAFCO. The Notice of Preparation/Initial Study Checklist, provided as Appendix A and B to this DEIR, identified the potential for the proposed Project to result in impacts associated with applicable land use plans, policies, and regulations. Excerpts from the relevant planning documents and ordinances are presented below; and complete copies of the documents and ordinances are available at the respective planning departments of the City and County, as well as the Planning and Policy Department of SCAG.

4.8.1 Existing Land Use Conditions

Figure 4.8-1, *Aerial Photograph*, depicts the land use patterns within and surrounding the Project site. As shown, the approximately 274-acre site is comprised of four agricultural fields, with scattered residences associated with farming operating occurring at the northwest corner of the site. The Bryant Drain, an open earthen irrigation runoff water drainage canal, trends in an east-west direction through the center of the site and would likely be pipelined as part of the development of the site. The Best Canal borders the western edge of the site. A combination of agricultural uses is located primarily to the north, east, and south, and light industrial, commercial and residential uses occur west of the proposed Project site. A residence and associated ancillary structures occur between two agricultural fields located north of the Project site. The La Paloma subdivision, situated just west of the Project site, and Luckey Ranch Specific Plan subdivision located north of the Project site across from Hwy 78, were under construction at the time this document was prepared.

4.8.2 Regulatory Setting

The proposed Project site is governed by the Imperial County and Brawley General Plans, as amended 01/04 and 01/95, respectively, the Southern California Association of Governments, and LAFCO.

4.8.2.1 Imperial County General Plan

While the proposed Project is located within the sphere of influence of the City of Brawley, and would be annexed upon Project approval, the proposed Project is subject to the policies and zoning regulations of the County General Plan and zoning ordinance, as amended in January 2004. General Plan policies are implemented through the zoning, subdivision, and other County ordinances. The land use designation for the Project area, per the Imperial County General Plan, is the County Urban Area classification.

The County Urban Area classification is intended to provide for low to high-density residential, commercial, and industrial development, in addition to associated public services. County Urban Areas are lands that are anticipated to be annexed or incorporated and should be provided with the full range of public infrastructure normally associated with cities. Therefore, development in these areas shall provide for the extension of full urban services such as public sewer and water, drainage improvements, street lights, fire hydrants, and fully improved paved streets with curbs and, in most cases, sidewalks. All development within County Urban Areas shall also be reviewed by affected local agencies and County departments to determine that an adequate level of public services exist to serve the proposed Project. The development standards for the Urban Area classification are further discussed below:

Residential Development Standards:

- Residential land uses at a population density of 1 to a maximum of 29 dwelling units per acre.
- Residential building intensity is determined by available public facilities and services and physical or environmental factors which may affect the site.
- New residential development must be consistent with the existing character of the community.
- New residential development within the vicinity of airports must be consistent with the Airport Land Use Compatibility Plan.

Commercial Development Standards:

- Low to high intensity commercial land uses including professional offices, neighborhood and general commercial uses.
- Maximum floor area ratio not greater than 2:1 (i.e., 2 square feet of gross building area per 1 square foot of area within the lot or building site).
- Building height maximum of 50 feet or as provided by the Airport Land Use Compatibility Plan.
- A minimum of 10 percent of the lot area shall be landscaped. A greater percentage of landscaping may be required for projects involving discretionary review.
- New commercial development within the vicinity of airports must be consistent with the Airport Land Use Compatibility Plan.

K:\ SAN DIEGO\ PROJECTS\ 00461 07 RANCHO PORTER\ MAPDOC\ FIGURES\ FIG4 8 1 AERIALPHOTO.MXD AS (12-30-08)

Source: ESRI Aerial Imagery, ICF Jones & Stokes

ICF Jones & Stokes
an ICF International Company

Figure 4.8-1
Aerial Photo
Rancho-Porter Project EIR

Open Space/Recreation Standards:

- Open space land uses within this category consist of environmentally sensitive areas, fault zones, floodways and flood plains, and agricultural lands. Recreational land uses within this category consist of both outdoor and indoor facilities such as parks, athletic fields, recreational vehicle parks, and commercial sports enterprises such as golf courses, health and athletic clubs, and bowling alleys.

4.8.2.2 Imperial County Land Use Ordinance

The County of Imperial County has designated the site as A2U (General Agriculture/Urban Overlay) and M1NU (Light Industrial/Urban Overlay). These overlay zones are intended to designate areas that are within an Urban Area of an incorporated city or an Urban Area as designated on the County's General Plan. With regard to Urban Areas around incorporated cities, it is the intent of Imperial County to apply the standards, rules, regulations, and ordinances of the neighboring jurisdiction. To that end, the Board of Supervisors of Imperial County directs staff to work with their respective counterparts in the areas with an Urban Area designation and to use the Urban Area regulations in implementing any proposed land use action.

4.8.2.3 City of Brawley General Plan and Service Area Plan

The proposed Rancho Porter Project site is located outside the City of Brawley but within the City's SOI. Upon approval by the City, Rancho Porter will require annexation into Brawley to connect to City services. Discussed below is the recently adopted City of Brawley General Plan and Service Area Plan.

Per the City's General Plan, recently adopted in September 2008, the Project site is designated as a "Special Study Area," which is a designation for land within the City and its' SOI that includes approved and proposed Specific Plans and Downtown Overlay Districts. The Project site includes the following three General Plan land use designations: Low Density Residential, Commercial, and Open Space, which are discussed below:

Low Density Residential: This residential land use designation provides for the development of low density detached and attached single-family dwelling units, including either detached or attached (zero lot line) single-family units and mobile homes. Up to two dwelling units per lot or parcel are permitted. This designation permits the construction of as many as nine detached or attached single-family dwelling units per acre. Other uses such as churches, schools, and child-care facilities, which are determined to be compatible with and oriented toward serving the needs of low density detached and attached single-family dwelling units, also are permitted.

Commercial: Commercial activities within this designation include retail, professional office, and service-oriented business activities serving the citywide population. Commercial uses include small scale businesses as well as large scale developments such as department stores, discount stores, furniture/appliance outlets, home improvement centers, entertainment centers, sub regional and regional shopping centers, professional medical offices, and hospitals. The maximum intensity of development permitted in this category is a floor area ratio of 0.6:1.

Open Space: This designation includes a wide range of public, quasi-public, and private uses such as Brawley Municipal Airport, school sites, public parklands, government administrative offices and facilities, public facilities, libraries, hospitals, and cultural recreational activities. Active recreation activities allowed include community recreation facilities, equestrian centers, golf courses/driving ranges, indoor/outdoor athletic facilities, and public parklands. Sites owned by public agencies may be combined as joint use facilities with responsibilities for improvement, maintenance, and operations shared by the public agencies involved. These uses are distributed throughout the city. The maximum floor area ratio permitted in this category is 0.80:1.

In February 2007, the City of Brawley adopted its Service Area Plan (SAP), which has also been approved by the Imperial County LAFCO. The SAP has been prepared for the City of Brawley in accordance with the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, which requires that such a plan identify the existing and projected demand for public facilities and that services be provided by all incorporated cities and special districts within the State. The 2000 legislation is specifically implemented by LAFCO, whose policy states that an SAP must be implemented prior to the formal annexation of land.

The SAP outlines the City of Brawley's existing public services and facilities, estimates their current and future anticipated demand, and describes which necessary facilities and services should be developed and extended to meet current and projected demands. The SAP is intended to demonstrate the City's ability to provide adequate services to areas within the SOI boundaries, which includes approximately 6,318 acres, at the time of annexation. An approximately 15-year planning horizon is used to forecast growth, and the estimated demands and provisions to meet demands are based on population projections until 2020.

4.8.2.4 Brawley Municipal Airport Master Plan

The Brawley Municipal Airport Master Plan, which was first prepared in 1988 and updated in 1999 as a long-range 20-year plan for the type and schedule of development projects within the airport's vicinity until the year 2020, guides the development and improvement schedule of airport facilities. The airport is located just north and west of the Project site, just east of Best Avenue, south of Jones Street, the Southern Pacific Railroad to the west, and agricultural development to the north. The airport comprises approximately 160 acres and provides one runway for plane landings. The plan also provides airport land use compatibility zones and noise contours to determine compatibility with surrounding areas. Cost and economic feasibility are included in the determination of necessary facilities for the airport and future needs are presented.

4.8.2.5 Southern California Association of Governments—Regional Comprehensive Plan and Guide

SCAG is an organization of municipalities within the Southern California region. The organization functions as the metropolitan planning organization for six counties, including: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. As the designated metropolitan planning organization, SCAG is mandated by the federal and state governments to prepare plans for regional transportation

(Regional Transportation Plan and Regional Transportation Improvement Program) and air quality conformity. It is empowered by state housing law to allocate regional housing needs to its constituent counties and cities. In addition, SCAG has taken on the role of planning for regional growth management and hazardous waste management.

The Regional Comprehensive Plan and Guide (RCPG) is intended to encourage cities within the SCAG region to undertake consistent, region-wide planning. This document contains core policies intended to provide local governments a basis with which to ensure consistency of their plans with applicable regional plans under CEQA, in addition to ancillary policies addressing important issues facing the region. This plan, however, does not regulate land use, and compliance with SCAG's regional plan is voluntary. It should be noted that SCAG is currently preparing an updated version of the Regional Comprehensive Plan and Guide that was previously adopted in 1996.

4.8.3 Impact Analysis

4.8.3.1 Methodology

The potential land use and planning impacts associated with the proposed Rancho Porter Project are evaluated through a qualitative comparison of the anticipated Project effects with existing site conditions and characteristics of surrounding land uses. The proposed Project is also evaluated for its consistency with existing land use plans, regulations, and policies applicable to the proposed Project area and its surrounding vicinity. Significant impacts would occur if the proposed Project would result in an adverse physical environmental impact when evaluated in accordance with the significance criteria described below.

4.8.3.2 Thresholds of Significance

Thresholds for land use and planning impacts are based on Appendix G of the State CEQA Guidelines, as adapted to the circumstances of this Project. Both City and County General Plan consistency are included because while the Project is under County jurisdiction, Project approval would result in annexation to the City. The Initial Study Checklist evaluated the thresholds contained within Appendix G of the State CEQA Guidelines and the proposed Project was determined only to have the potential to result in a significant impact if it were to:

LU-1: Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project, which would result in a significant environmental impact?