

US EPA ARCHIVE DOCUMENT

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TRANSBOUNDARY ENVIRONMENTAL ASSESSMENT FOR THE REHABILITATION OF SEWER LINES IN MEXICALI, BAJA CALIFORNIA

March 2013

Prepared for:
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SECTION 1- PURPOSE AND NEED FOR ACTION

1.1 Introduction

U.S.EPA is considering providing BEIF funding for the rehabilitation of the wastewater collection system in the areas known as Loma Linda and Esperanza within the City of Mexicali (Mexicali), Baja California, Mexico.

1.2 Legal Framework

EPA has determined that it will follow the NEPA and EPA regulations for environmental impacts in the U.S. from projects located in the U.S. or Mexico. The EPA follows the U.S. Agency for International Development (AID) approach as summarized in Title 22 CFR Part 216.1-216.10 as guidance for assessing environmental impacts in Mexico. The AID regulations envision collaboration with affected countries to the maximum extent practicable in developing an Environmental Assessment (EA). AID regulations authorize use of either a study prepared by an international body in which the U.S. is a participant, or a concise review of the relevant environmental issues, with appropriate documentation, as a substitute for an EA.

This EA was prepared using Council of Environmental Quality (CEQ) regulations 40 CFR Parts 1500-1508 and EPA regulations (40 CFR Part 6) as guidance. It documents the environmental consequences of the proposed federal action. This EA is extensively based on information contained in the Draft Transboundary Environmental Assessment (EA) for Wastewater Collection System – Mexicali IV, Mexicali, Baja California (BECC March 2007). The information contained in the Mexicali IV EA is incorporated by reference into this EA. Additional information was obtained from previous environmental impact statements and other sources, as referenced.

On February 20, 2012, the Baja California's Secretariat of Environmental Protection via the document SPA-MXL-508/2012 indicated that according to the Baja California Environmental Protection State Law, the proposed project did not require an environmental assessment as the project consists of the rehabilitation of existing infrastructure that has exceeded its lifecycle. It also indicated that provisions shall be taken for proper solid waste disposal.

A description of the project was provided by Comisión Estatal de Servicios Públicos de Mexicali (CESPM) including projected flows, pipeline alignments, diameters, and wastewater treatment and effluent disposal methods. Potential adverse and beneficial environmental impacts of the action alternative, as well as the "no action" alternative are described in the EA.

1.3 Project Location and Study Area

Mexicali is located in Mexico along the United States (U.S.)-Mexico border region adjacent to the international boundary just south of the City of Calexico (Figure 1-1). The *border region* is defined as the bi-national area that extends approximately 62 miles (mi) (100 kilometers [km]) north into the U.S. and approximately 186 mi (300 km) south into Mexico along the length of the international boundary.

The City of Mexicali has a population of 689,775, according to the 2010 Mexican census, while the population of the entire metropolitan area (as well the municipality) is 936,826. Mexicali is the second largest city in Baja California.

The Comisión Estatal de Servicios Públicos de Mexicali (CESPM) is the municipal agency responsible for the construction and maintenance of water and wastewater service throughout the City. CESPM divides the City of Mexicali into four service areas for purposes of water distribution and wastewater collection. These service areas are referred to as Mexicali I, II, III, and IV (Figure 1-2). The proposed project discussed in this EA is located in the Mexicali I service area.

Wastewater collected with Mexicali I service area is treated at the Zaragoza Wastewater Treatment Plant. There is aging wastewater collection infrastructure within the Mexicali I service area, which results in pipeline breaks and soil collapses. The presence of untreated wastewater runoff can contaminate area groundwater and impact surface water quality. In addition, there is a risk to human health with contact with raw wastewater. Wastewater discharges from the areas of Loma Linda and Esperanza to the Mexicali wastewater collection system are estimated to be 1.5 liters per second (lps) and 5 lps respectively.

The New River runs through the Mexicali I service area. The New River is an international water body which flows from Mexico into the U.S. During emergency repairs to the collection lines within Mexicali I, untreated wastewater flows are diverted directly to the New River.

The City is proposing to replace deteriorated and/or collapsing wastewater lines within the installation of approximately 2,300 meters of sewer lines in Loma Linda and 7,400 meters of sewer lines in Esperanza.

1.4 Purpose and Need for Proposed Action

The purpose and need for the proposed action is to replace aging wastewater collection infrastructure within Mexicali's areas Loma Linda and Esperanza. Failing wastewater collection infrastructure causes potentially harmful impacts to human health and the environment.

The proposed action is to replace documented deteriorated or collapsing wastewater lines with the installation of approximately 2,300 meters of sewer lines in Loma Linda and 7,400 meters of sewer lines in Esperanza. The proposed project is estimated to benefit 2,568 residents.

1.5 Scope of Environmental Assessment

The purpose of this EA is to document and make public the potential direct, indirect, and cumulative environmental impacts that may arise from the implementation of the preferred alternative, the no action alternative, or any other alternative considered by CESPM. As defined in CEQ regulations (§1508.25), the scope of the EA is limited to the environmental resources and services within the area of interest in the U.S. that may be affected by the no action alternative or one of the action alternatives, although reference is also made to potential impacts in Mexico to the extent that they may influence effects in the U.S.



Figure 1.1 Regional Location Map

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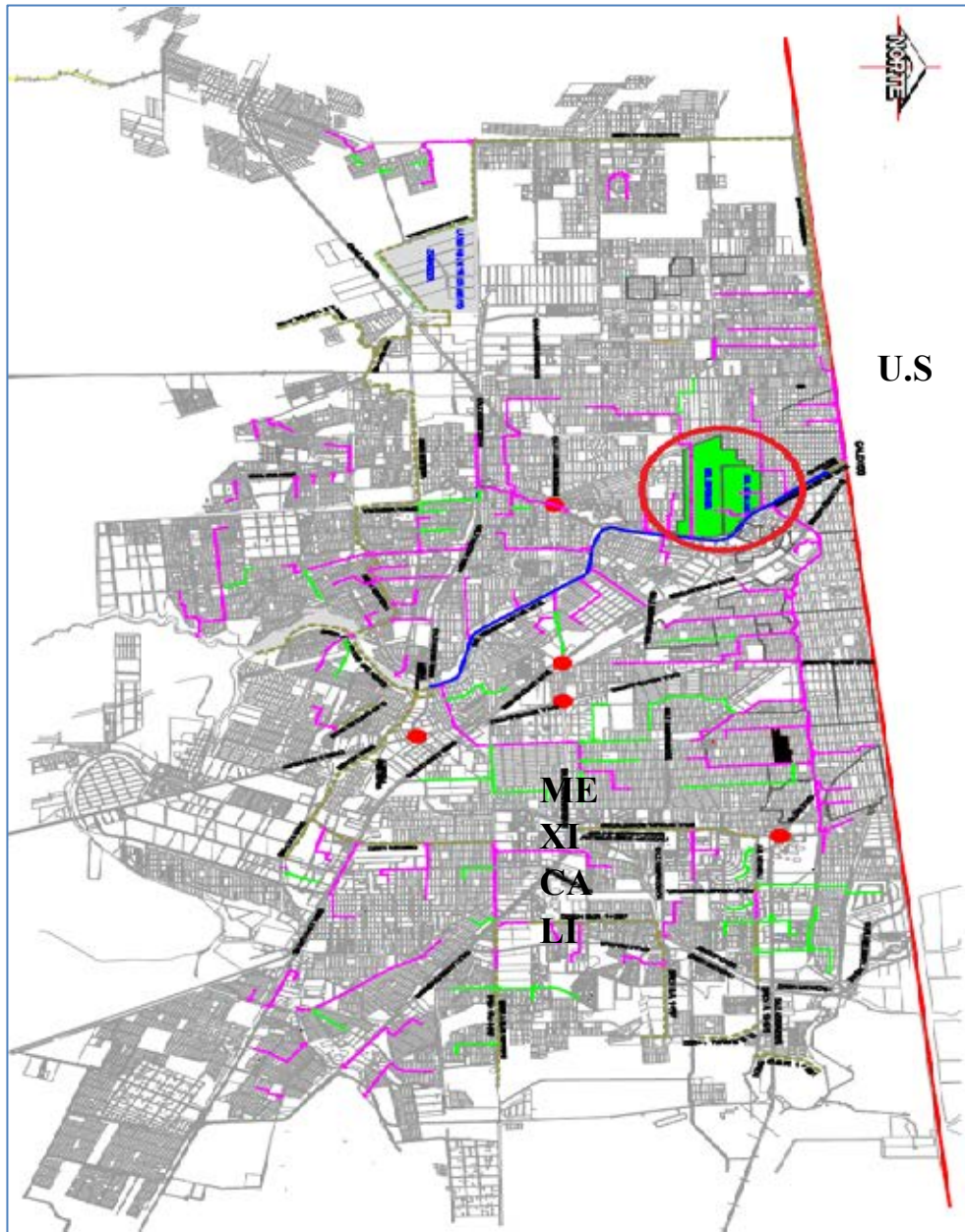


Figure 2.2
Project Location

1.6 Project Approvals and Permits

CESPM has applied for project funding through the Border Environment Infrastructure Fund (BEIF) which was established by the North American Development Bank (NADB) to administer grant resources provided by the U.S. Environmental Protection Agency (EPA). The purpose of the BEIF is to assist in financing water and wastewater projects in the U.S.-Mexico border region (NADB 2006). Wastewater projects within Mexico must meet the following selection criteria to be eligible for funding through the BEIF:

- 1) Projects must address an existing human health and/or ecological issue
- 2) Projects must provide a benefit within the U.S.; however, priority is given to projects with benefits in both the U.S. and Mexico
- 3) Projects must be certified by the BECC
- 4) Priority is given to projects with maximum affordable funding from other sources and where BEIF funding is necessary to complete financing of the project
- 5) Adequate planning, operations, and maintenance provisions must be met prior to design and construction financing
- 6) Only community infrastructure programs will be selected to receive funding
- 7) Projects that discharge directly or indirectly to waters on the U.S. side of the border must target achievement of U.S. norms for ambient water quality within the U.S. Any flow reductions that result from implementation of non-discharging alternatives must not threaten U.S. or shared ecosystems

The BEIF is provided through grant resources from the EPA; therefore, projects receiving BEIF funding must meet the requirements of the National Environmental Policy Act (NEPA). This EA has been prepared pursuant to Federal Regulations, 40 Code of Federal Regulations (CFR) Part 6, to meet the requirements of NEPA. A summary of the laws and regulations addressed in this EA is included in Appendix A.

SECTION 2 -DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Alternatives Evaluated

This EA defines two alternatives for the Mexicali Colonia's project: Alternative 1 (the Preferred Alternative) and the No Action Alternative. Neither the Preferred Alternative nor the No Action Alternative involves result in construction within the U.S.

2.2 No Action Alternative

Within the Mexicali I service area, there are collapsing or deteriorating wastewater collection lines. No action would result in the continued use of failing wastewater collection lines with likely impacts to human health and the environment from exposure to untreated sewage. Additionally, if no action is taken, raw sewage would continue to be discharged to the New River when emergency temporary repairs are being made to the collection lines. The No Action Alternative does not protect public health or water quality.

2.3 Alternative 1: Wastewater Collection System Rehabilitation– Preferred Alternative

The Preferred Alternative involves the replacement of deteriorated and/or collapsing wastewater lines with the installation of approximately 2,300 meters of sewer lines in Loma Linda and 7,400 meters of sewer lines in Esperanza. The estimated population of the proposed project areas is 2,568 residents with 642 wastewater connections. Wastewater discharges in the project area of Loma Linda and Esperanza are estimated to be 1.5 liters per second (lps) and 5 lps respectively. Both areas discharge to the Zaragoza Wastewater Treatment Plant, which currently complies with Mexican Norms for effluent quality.

SECTION 3 - AFFECTED ENVIRONMENT

This section describes relevant existing environmental conditions for resources potentially affected by the proposed action and identified alternatives. In compliance with the NEPA, Council on Environmental Quality (CEQ) 989, the description of the affected environment focuses on only those aspects potentially subject to impacts.

3.1 Air Quality

3.1.1 Definition of Resource

Air quality is affected by stationary sources (e.g., industrial development) and mobile sources (e.g., motor vehicles and construction equipment). Air quality at a given location is a function of several factors, including the quantity and type of pollutants emitted locally and regionally, and the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersion are wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and topography.

For the purposes of this EA, air quality was examined at the regional (i.e., air basin) level because attainment status is determined at this level. Odors, on the other hand, tend to be localized and, for the purposed of this EA, the focus is on the international border near the project site and the New River.

3.1.2 Environmental Setting

3.1.2.1 Climate

The Colorado River Basin region (which includes the Imperial Valley) has the driest climate in California. The climate of the Imperial Valley is generally typical of Sonoran desert regions of the Southwest. The annual average temperature is 72 degrees Fahrenheit (°F). Typically, temperatures in excess of 100°F occur on greater than 100 days per year, usually during the summer months of June through September. Agricultural development in the Imperial Valley has altered the natural desert environment through intensive irrigation practices, raising the relative humidity over that observed in the surrounding desert region. Nevertheless, average daily relative humidity in the valley remains low, ranging from 28% in the spring to 52% in the winter. Most of the valley receives less than three inches of rain per year with the majority of the rain falling between the months of November and March.

Prevailing winds generally blow from the northwest to the southeast. Strong temperature differentials are created by intense solar heating, producing moderate winds and deep thermal convection. Winds average 8 to 12 miles per hour (mph) from the west during the daytime, dropping to an average of 3.4 mph at night.

3.1.2.2 Air Quality

Criteria Pollutants

Air quality in a given location is determined by the concentration of various pollutants in the atmosphere. National Ambient Air Quality Standards (NAAQS) are established by the U.S.EPA for criteria pollutants, including: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter equal to or less than 10 microns in diameter (PM₁₀) and 2.5 microns in diameter (PM_{2.5}), and lead (Pb).

NAAQS represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health and welfare. Air quality is affected by stationary sources (e.g., industrial development) and mobile sources (e.g., motor vehicles). Air quality at a given location is a function of several factors, including the quantity and type of pollutants emitted locally and regionally, and the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersion are wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and topography.

Ozone (O₃). The majority of ground-level (or terrestrial) O₃ is formed as a result of complex photochemicals (e.g., volatile organic compounds [VOCs]), nitrogen oxides (NO_x), and oxygen. O₃ is a highly reactive gas that damages lung tissue, reduces lung function, and sensitizes the lung to other irritants. Although stratospheric O₃ shields the earth from damaging ultraviolet radiation, terrestrial O₃ is a highly damaging air pollutant and is the primary source of smog.

Carbon Monoxide (CO). CO is a colorless, odorless, poisonous gas produced by incomplete burning of carbon in fuel. The health threat from CO is most serious for those who suffer from cardiovascular disease, particularly those with angina and peripheral vascular disease.

Nitrogen Dioxide (NO₂). NO₂ is a highly reactive gas that can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Repeated exposure to high concentrations of NO₂ may cause acute respiratory disease in children. Because NO₂ is an important precursor in the formation of O₃ or smog, control of NO₂ emissions is an important component of overall pollution reduction strategies. The primary source of NO₂ in the Imperial Valley is transportation.

Sulfur Dioxide (SO₂). SO₂ is emitted primarily from stationary source coal and oil combustion, steel mills, refineries, pulp and paper mills, and from non-ferrous smelters. High concentrations of SO₂ may aggravate existing respiratory and cardiovascular disease; asthmatics and those with emphysema or bronchitis are the most sensitive to SO₂ exposure. SO₂ also contributes to acid rain, which can lead to the acidification of lakes and streams and damage trees.

Particulate Matter (PM₁₀ and PM_{2.5}). Particulate matter is a mixture of tiny particles that vary greatly in shape, size, and chemical composition, and can be comprised of metals, soot, soil, and dust. PM₁₀ includes larger, coarse particles, whereas PM_{2.5} includes smaller, fine particles. Sources of coarse particles include crushing or grinding operations, and fugitive dust generated from travel on paved or unpaved roads. Sources of fine particles include all types of combustion activities (e.g., motor vehicles, power plants, wood burning) and certain industrial processes. Secondary fine particles (e.g., nitrate and sulfate) form in the atmosphere as a result of chemical reactions between precursor pollutants such as NO_x, SO₂, VOC, and ammonia. Exposure to PM₁₀ and PM_{2.5} levels exceeding current standards can result in increased lung- and heart-related respiratory illness. Both PM₁₀ and PM_{2.5} are monitored and regulated; however, the U.S.EPA has not yet designated attainment and non-attainment areas for PM_{2.5}.

Airborne Lead (Pb). Airborne lead can be inhaled directly or ingested indirectly by consuming lead-contaminated food, water, or non-food materials such as dust or soil; fetuses, infants, and children are most sensitive to Pb exposure. Pb has been identified as a factor in high blood pressure and heart disease. Exposure to Pb has declined dramatically in the last 10 years as a result of the reduction of Pb in gasoline and paint, and the elimination of Pb from soldered cans.

Regulatory Framework

Air quality in a specific air basin is assessed by comparing ambient concentrations to applicable ambient air quality standards. Federal and State air quality standards have been established for various pollutants. Standards are levels of air quality considered safe from a regulatory perspective, including an adequate margin of safety, to protect public health and welfare.

The Federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 U.S.C. 7506 (c)]. The Clean Air Act Amendments of 1990 place most of the responsibility for achieving compliance with NAAQS on individual states. Areas not in compliance with a standard can be declared *nonattainment* areas by EPA or the appropriate state or local agency. EPA requires each state to prepare a State Implementation Plan (SIP). A SIP is a compilation of goals, pollution control strategies, regulations, and schedules for implementation, that will help the nonattainment area come into compliance with the relevant NAAQS. Once an area has attained the NAAQS, the state can submit a maintenance plan demonstrating how the area will continue to attain the standard for the next 10 years. Once EPA approves the maintenance plan, the area can be redesignated to “attainment” status.

In most cases, California state standards are more stringent than federal standards. California has used different exposure periods and adopted additional standards (hydrogen sulfide, sulfate, and visibility-reducing particulates) to address the unique meteorological conditions of the state. State authority for air quality control is regulated under the California Clean Air Act (CCAA) of 1988 and other implementing legislation.

The CCAA requires all areas of the state to achieve and maintain California Ambient Air Quality Standards (CAAQS) by the earliest date practicable. The California Air Resources Board (CARB) administers the CCAA and establishes and directs local air pollution control districts (APCDs) to implement the CAAQS. A common expression of ambient air quality is the number of days that air pollution levels exceed the federal and state standards shown in Table 3-1.

Table 3- 1 State and Federal National Ambient Air Quality Standards

Pollutant	State Standard	Federal Standard
Ozone (O ₃)	0.09 ppm (180 µg/m ³) 1hr 0.070 ppm (137 µg/m ³) 8 hr	0.075 ppm (137 µg/m ³) 8 hrs
Carbon monoxide	9.0 ppm (10 mg/m ³) 8hr 20 ppm (23 mg/m ³) 1hr	9.0 ppm (10 mg/m ³) 8 hr 35.0 ppm (40mg/m ³) 1hr
Sulfur dioxide	0.25 ppm (655 µg /m ³) 1hr 0.04 ppm (105 µg /m ³) 24hr	.075ppm (196 µg /m ³) 1hr 0.14 ppm (365 µg /m ³) 24hr
Nitrogen dioxide	0.18 ppm (339 µg/m ³) 1hr 0.030 ppm (57µg/ m ³) annual arithmetic mean	100 ppb (188 µg/ m ³) 1hr 0.053 ppm (100 µg/m ³) annual arithmetic mean
Lead	1.5 µg/m ³ 30-day average	0.15µg /m ³ 3 month average
Respirable particulate matter (PM _{2.5})	12 µg /m ³ annual arithmetic mean	35 µg /m ³ 24 hr 15 µg /m ³ annual arithmetic mean
Respirable particulate matter (PM ₁₀)	50 µg /m ³ 24 hr 20 µg /m ³ Annual Arithmetic Mean	150 µg /m ³ 24 hr*
Source: California Air Resources Board (CARB), June 2012 * Not to be exceeded more than once per year		

Local Air Quality

The Mexicali Valley – together with the Imperial Valley and Coachella Valley in California – are within the Salton Sea Air Basin, a geographic designation for the air basin straddling the U.S.-Mexico border which receives emissions from all areas beneath it.

For air quality planning purposes, Imperial County, is under the jurisdiction of the Imperial County APCD. Although the Imperial County APCD has jurisdiction over the air basin, it does not have jurisdiction over all activities contributing to ambient air quality in the air basin (e.g., activities outside the U.S.). Industrial and mobile sources of emissions in Imperial Valley are generally few, thus limiting exceedances of Federal and State air quality standards. Particulate emissions are impacted by meteorological conditions, minimal rainfall, and dry soils. In the Salton Sea Air Basin, windblown fugitive dust, wind erosion of exposed soils, and vehicle travel over unpaved roads are the major sources of PM₁₀ (BECC 2003). The Imperial County APCD has adopted rules regulating pollutant emission levels. The APCD also operates and maintains air quality monitoring station in Brawley, Calexico, El Centro, Niland, and Westmoreland (EPA 2005). Imperial County is designated as a federal nonattainment area for both 8-hour O₃, PM₁₀, and PM_{2.5} and an attainment area for all other NAAQS.¹

The County is also designated as state nonattainment for O₃ and PM₁₀. The City of Calexico is designated as state nonattainment for CO while the remainder of the County is designated unclassified for the state standard. The County is in attainment for all other CAAQS.

Imperial County is designated as a federal nonattainment area for both 1-hour and 8-hour O₃, nonattainment for PM₁₀ and nonattainment for PM_{2.5} an attainment area for all other NAAQS. The County is also designated as state nonattainment for O₃, PM₁₀ and PM_{2.5}. The City of Calexico is designated as state nonattainment for CO while the remainder of the County is designated unclassified for the state standard. The County is in attainment for all other CAAQS.

The nearest APCD air quality monitoring stations to the proposed project site in Mexicali I are in the City of Calexico. The air quality monitoring network for Imperial County includes a total of five monitoring stations located within the urban areas of Niland, Westmorland, Brawley, El Centro and Calexico. The Air District operates four of the monitoring stations while the CARB operates the monitoring station in Calexico. According to data referenced from EPA's Air Quality System (AQS), the highest 3-year average of expected exceedances of the PM-10 standard from 2009-2011 was 6.3 at the Brawley monitor. The PM-10 standard is violated when the three year average of expected exceedances is equal to or less than 1.0. (AQS, 2012) Maximum 8-hour O₃ concentrations exceeded the 2008 primary NAAQS of 0.075 ppm on multiple days in the most recent three-year period, with an estimated 2009-2011 design value of 0.080 ppm.

3.1.2.3 Odors

The New River is one of several transboundary waterways flowing from Mexico into the U.S. In the vicinity of the project area, the New River flows through the City of Mexicali into the City of Calexico, eventually draining northward into the Salton Sea. Historically, the New River has been identified as the source of odors in complaints filed with the Colorado River Basin Regional Water Quality Control Board (RWQCB).

¹Imperial County was designated as a "transitional" 1-hour ozone area, meaning it had not violated the 1-hour ozone NAAQS from January 1, 1987 to December 31, 1989 (the 3-year period just prior to enactment of the CAA Amendments of 1990).

3.2 Noise

3.2.1 Definition of Resource

Noise is defined as unwanted sound or, more specifically, as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human responses to noise vary depending on the type and characteristics of the noise, the distance between the noise source and the receptor, receptor sensitivity, and time. Due to wide variations in sound levels, sound is measured in decibels (dB), which are based on a logarithmic scale (e.g., a 10 dB increase corresponds to a 100% increase in perceived sound). Under most conditions, a 3 dB change is necessary for noise increase to be noticeable to humans. Sound measurement is further refined by using an A-weighted decibel scale (dBA) that emphasizes the range of sound frequencies that are most audible to the human ear (between 1,000 and 8,000 cycles per second).

The day-night average sound level (Ldn) is the energy-averaged sound level measured over a 24-hour period, with a 10-dB penalty added to noise event occurring between 10:00 p.m. and 7:00 a.m. The 10-dB penalty is intended to compensate for generally lower background noise and increase annoyance associated with noise events occurring during the quieter nighttime hours.

3.2.2 Environmental Setting

3.2.2.1 Regulatory Standards

Imperial County General Plan Noise Element

The 1993 Imperial County Noise Element establishes the goal of “providing an acceptable noise environment for existing and future residents of Imperial County.” To achieve this goal the Noise Element establishes Noise/Land Use Compatibility Standards regarding Construction Noise. These standards state:

“Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB [equivalent continuous sound level] Leq, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor.”

This standard assumes a construction period of days or weeks relative to an individual sensitive receptor. In cases of extended construction duration, the standard may be tightened so as not to exceed 75 dB Leq when averaged over a one-hour period.

In the County, construction equipment operation is typically limited to the hours of 7 a.m. to 7 p.m., Mondays through Fridays, and 9 a.m. to 5 p.m. on Saturdays. No commercial construction operations are permitted on Sunday or holidays. In cases of a person constructing or modifying a residence for himself/herself, and if the work is not being performed as a business, construction equipment operations may be performed on Sundays and holidays between the hours of 9 a.m. and 5 p.m. Such non-commercial construction activities may be further restricted where disturbing, excessive, or offensive noise causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area..

The City of Calexico’s Noise Ordinance (City of Calexico 1998) regulates noise emitted from construction activities through the placement of time restrictions on such activities; the ordinance limits construction activities between the hours of 8:00 a.m. and 5:00 p.m. This restriction assumes that sensitive receptors are most sensitive between the hours of 5:00 p.m. and 8:00 a.m.

The City Noise Ordinance also addresses long-term interior and exterior noise impacts caused by traffic and other sources and places limits on noise levels for various land uses. Table 3-1 displays the ordinance-specified maximum noise level limit for particular land use zones.

Table 3-2 Maximum Noise Level Limit

Zone	Time	Sound Level (dBA)
Residential Low Density	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	40
Residential High Density	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	50
Commercial	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	50
Industrial	7:00 a.m. to 10:00 p.m.	70
	10:00 p.m. to 7:00 a.m.	55

Source: City of Calexico 1998.

3.2.2.2 Existing Noise Environment

In Calexico, vehicular traffic movement on the City's road system is the predominant source of noise in the City. Other significant noise sources include rail traffic on the Southern Pacific Railroad, aircraft operations at the Calexico International Airport, and international vehicular border traffic. The City General Plan identifies the Southern Pacific Railroad as a significant contributor to nuisance noise levels. Noise from trains using the railroad depends on the number of locomotives per train, the number of cars per train, and the speed of the train.

The Calexico International Airport is located west of the city, adjacent to the international border. The airport is open 365 days per year and has a monthly average of 1,226 arrivals and departures, 5% of which occur between the hours of 5:00 p.m. and 7:00 a.m. Noise contours for the airport show the 55 dB noise contour reaching the very western edges of the developed portion of the City and all other noise contained within undeveloped, open area west of the city.

The international border is located in downtown Calexico, one-half block from most downtown commercial establishments. State Highway 111 runs north-south, from the border northward into Imperial County. This highway is the principal route for all vehicles traveling to or from Mexico via Mexicali and traffic (and noise) on this highway is continuous day and night.

3.3 Floodplains

3.3.1 Definition of Resource

Floodplains are belts of low, level ground present on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by floodwater. For the purposes of this EA, 100- and 500-year floodplains which have been mapped by the Federal Emergency Management Agency (FEMA) as occurring along the New River in the Calexico area were examined.

Inundation dangers associated with floodplains have prompted legislation that largely limits development in these areas. For example, Executive Order 11988, Floodplains Management, requires actions to minimize flood risks and impacts. Under this order, development alternatives must be considered, and building requirements must be in accordance with specific federal, state, and local floodplain regulations.

3.3.2 Environmental Setting

Flooding is a hazard within Imperial County. A natural floodplain in Imperial County is considered to be the area adjacent to the New River. The flood hazard map prepared by FEMA for the Calexico area shows the 500-year floodplain of the New River within the city limits as contained north of Calexico International Airport which is zoned as Open Space (City of Calexico 2006). No FEMA-mapped 100-year floodplains exist on the U.S. side of the border adjacent to Mexicali I.

Natural drainage in the greater Mexicali area flows generally northward across the international boundary into Imperial County. The principal drainages from Mexicali Valley are the New River and the Alamo River, both of which ultimately drain into the Salton Sea. The natural drainage system throughout Mexicali and the Imperial Valley has been altered through the area's long history of agricultural development and more recent urban growth; as a result, natural drainage tends to be channeled through surface drainage networks and is diverted for agricultural, industrial, commercial, and residential use. In the City of Mexicali, both natural and man-made drainages discharge into the New River.

3.4 Wetlands

3.4.1 Definition of Resource

The U.S. Army Corps of Engineers (U.S.ACOE) and EPA define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR 328.3 [b] 1984). Wetlands provide a variety of functions including groundwater recharge and discharge; flood flow alteration; sediment stabilization; sediment and toxicant retention; nutrient removal and transformation; aquatic and terrestrial diversity and abundance; and uniqueness. Three criteria are necessary to define wetlands: vegetation (hydrophytes), soils (hydric), and hydrology (frequency of flooding or soil saturation). Hydrophytic vegetation is classified by the estimated probability of occurrence in wetland versus upland (non-wetland) areas throughout its distribution. Hydric soils are those that are saturated, flooded, or ponded for sufficient periods during the growing season and that develop anaerobic conditions in their upper horizons (i.e., layers). Wetland hydrology is determined by the frequency and duration of inundation and soil saturation; permanent or periodic water inundation or soil saturation is considered significant forces in wetland establishment and proliferation.

Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and Executive Order 11990, Protection of Wetlands.

For the purposes of this EA, wetlands were examined near the international border at Mexicali I and at areas adjacent to the New River.

3.4.2 Environmental Setting

According to National Wetland Inventory maps for the area, several man-made wetlands are located along the New River in southwestern Calexico, near the U.S.-Mexico border at Mexicali. These wetlands types include permanently flooded ponds, palustrine seasonal wetlands, emergent wetlands, and shrub-scrub wetlands.

3.5 Water Resources

3.5.1 Definition of Resource

Water resources considered in this analysis include surface water and drainage, flood hazards, groundwater, and water quality in the U.S.-Mexico border area north of Mexicali I and along the New River drainage into the U.S. Surface water resources comprise lakes, rivers, and streams and are important for a variety of economic, ecological, recreational, and human health reasons. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential resource in many areas; groundwater is commonly used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition.

3.5.2 Environmental Setting

Principal regulations legislating water resources in the U.S. and the border region stem from the Clean Water Act (CWA). The New River does not meet the Colorado Basin Plan standards promulgated by the RWQCB. In addition to the CWA, the RWQCB maintains jurisdiction over the water resources in the Calexico border region. The New River is listed as a water quality impaired water body by the U.S.EPA pursuant to Section 303(d) of the federal Clean Water Act (33 U.S.C. § 1313(d)) due to low dissolved oxygen and the presence of pesticides, nutrients, pathogens, sediment, selenium, toxaphene, toxicity, trash, copper, mercury, and zinc.

3.5.2.1 Surface Water

Imperial County covers an area of 4,597 square miles. The drainage basin for this region is the Salton Sea, which covers approximately 7,700 square miles. This drainage basin receives an average of 1 to 3 inches of rain annually.

The Colorado River is the main source of surface water in Imperial County. Water from the river is diverted at the Imperial Dam into the 82-mile All-American Canal by IID. IID also owns and operates a 1,590-mile network of main canals and laterals and 1,406 miles of main and lateral drains to serve approximately 500,000 acres of irrigated farm land. All watersheds located in the Imperial Valley drain into the Salton Sea, which is a closed body of water with no outlet except through evaporation. The drainages of the New and Alamo Rivers originate in Mexico, flow northward through the irrigated areas of Imperial Valley, and serve as outlets to man-made agricultural drains.

The New River, which flows approximately 3,300-feet (1-km) west of the proposed project area, originates approximately 15 miles south of Mexicali, crosses the U.S.-Mexico border at Calexico, and flows 60 miles northward through Imperial County to the Salton Sea.

In Mexico, the New River is reportedly used for domestic use and crop irrigation. In the U.S., water in the New River is used for agricultural irrigation and recreation. Water from the New

River is not used as a source of drinking water in the U.S. Designated beneficial uses of the New River include freshwater replenishment, industrial surface water supply, preservation of rare and threatened species, water contact and non-contact recreation, warm freshwater habitat, and wildlife habitat.

3.5.2.2 Groundwater

Groundwater within the Imperial Valley is stored in the Pleistocene sediments of the valley floor; however, the fine-grained lake sediments in the central portion of the Imperial Valley inhibit groundwater movement. Groundwater within the Salton Trough is located 6 to 8 feet below the ground surface level throughout most of the Imperial Valley. The shallow aquifers are affected by the inflow of Colorado River water, the rate of evaporation, the depth of the agricultural tile drains beneath farm lands, and seepage from other drains and rivers. The major source of groundwater recharge in the Imperial Valley Groundwater Basin is from irrigation return. Other recharge sources include rainfall infiltration, surface runoff, underflow into the basin (mainly from Mexicali Valley to the south), and seepage from the New River and the All-American and Coachella Canals.

A deep water reservoir also underlies the Imperial Valley. This reservoir has been estimated at 1.1 billion to 3.0 billion acre-feet, with total recoverable water estimated to be approximately 20% of the water in storage. Annual recharge is about 40,000 acre-feet from various sources.

3.5.2.3 Water Quality

The New River is considered an impaired water body. Pollution sources include agricultural drainage and tilewater, industrial and residential wastewater from Mexicali and the Imperial Valley, and runoff from confined animal feeding operations and industrial and household wastewater discharged along the river. Water quality in the New River at the international boundary is monitored monthly by the RWQCB and the U.S. International Boundary and Water Commission (U.S. IBWC) in order to:

- monitor and record water quality changes in the river as indicated by key parameters
- help determine the effects of infrastructure improvements in the City of Mexicali on water quality at the international boundary
- help determine the extent of New River pollution and compliance with water quality standards and treaty agreements
- obtain information that may be used in the development of more detailed studies, including TMDLs for the New River

Contaminants of concern detected in water samples include pathogens, metals, and pesticides.

Minute No. 264 of the Mexican-American Water Treaty titled "Recommendations for Solution of the New River Border Sanitation Problem at Calexico, California - Mexicali, Baja California Norte" was approved by the Governments of the United States and Mexico effective on December 4, 1980. Minute No. 264 specifies qualitative and quantitative standards for the New River at the International Boundary and upstream of the International Boundary in Mexico (RWQCB, 2006). The quantitative standards of Minute 284 are contained in table 3.3, along with Mexico standards for discharges in surface waters.

Table 3-3 Quantitative Standards New River and Mexico Norms

Parameter (milligrams per liter unless specified differently)	California			Mexico Maximum Permissible Levels – Rivers					
	New River at International Boundary			Use for Agricultural Irrigation		Urban Public Use		Protection of Aquatic Life	
	At Boundary	Lagoon Discharge Canal	Upstream of Discharge Canal	MA	DA	MA	DA	MA	DA
Temperature °C	N/A	N/A	N/A	N/A	N/A	40	40	40	40
Grease and Fats	N/A	N/A	N/A	15	25	15	25	15	25
Suspended Matter	N/A	N/A	N/A	ND	ND	ND	ND	ND	ND
Settleable Solids (milliliters per liter)	N/A	N/A	N/A	1	2	1	2	1	2
Total Suspended Solids	N/A	N/A	N/A	150	200	75	125	40	60
Biochemical Oxygen Demand (5-day test)	N/A	30 ⁴ (filtered)	30 ⁵ (unfiltered)	150	200	75	150	30	60
Chemical Oxygen Demand	N/A	70 (filtered)	100 ⁵ (unfiltered)	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Oxygen	5.0 ⁶	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
pH	6.0 to 9.0 ⁷	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fecal Coliform	N/A	N/A	30,000 colonies/100 ml ¹	2,000 colonies/100 ml		N/A	N/A	N/A	N/A

¹ with no single sample to exceed 60,000 colonies/100 ml
Source: NOM001-SEMARNAT-1996 and BRWQCB 2006

Table 3-3 Quantitative Standards New River and Mexico Norms (Continued)

Parameter (milligrams per liter unless specified differently)	California			Mexico Maximum Permissible Levels - Rivers					
	New River at International Boundary			Use for Agricultural Irrigation		Urban Public Use		Protection of Aquatic Life	
	At Boundary	Lagoon Discharge Canal	Upstream of Discharge Canal	MA	DA	MA	DA	MA	DA
Total Nitrogen	N/A	N/A	N/A	40	60	40	60	15	25
Total Phosphorus	N/A	N/A	N/A	20	30	20	30	5	10
Arsenic	N/A	N/A	N/A	0.2	0.4	0.1	0.2	0.1	0.2
Cadmium	N/A	N/A	N/A	0.2	0.4	0.1	0.2	0.1	0.2
Cyanide	N/A	N/A	N/A	1.0	3.0	1.0	2.0	1.0	2.0
Copper	N/A	N/A	N/A	4.0	6.0	4.0	6.0	4.0	6.0
Chromium	N/A	N/A	N/A	1	1.5	0.5	1.0	0.5	1.0
Mercury	N/A	N/A	N/A	0.01	0.02	0.005	0.01	0.005	0.01
Nickel	N/A	N/A	N/A	2	4	2	4	2	4
Lead	N/A	N/A	N/A	0.5	1	0.2	0.4	0.2	0.4
Zinc	N/A	N/A	N/A	10	20	10	20	10	20

Sources: NOM001-SEMARNAT-1996, and CRBRWQCB 2006

The New River, located in the Salton Sea Transboundary Watershed, has a long history of pollution problems. The development of irrigated agriculture in the Imperial Valley and the

population growth in the City of Mexicali in Mexico (located just south of the Mexican border), have resulted in widespread surface water pollution from human sources in the watershed.

Monitoring data collected by the RWQCB and the U.S. IBWC indicate that with the exception of pH, the standards established in Minute No. 264 have not been met, however significant progress has resulted from the implementation of sanitation projects supported by the US Mexico Border Program. In the last years several projects such as new wastewater treatment plants, wastewater collection infrastructure and improvements to existing infrastructure have been constructed in Mexicali. The RWQCB reported that New River bacteria were reduced by about 10-fold, the volatile organic compounds were reduced to below detection limits, and the dissolved oxygen has also improved. Improvements in Mexicali sanitation infrastructure have reduced the nutrient loading into the Salton Sea by about 20%. The table below shows a comparison of New River water quality at the Border before and after completion of the binational projects, including Las Arenitas WWTP going on line.

Table 3-4 New River water quality before and after completion of binational projects

ISSUE	PRE BINATIONAL PROJECTS	POST BINATIONAL PROJECTS
Fecal, E. Coli	> 1,000,000	~ 100 - 60,000
Dissolved Oxygen	< 1.0 mg/L	~ 5.0 mg/L
Nutrients (PO4)	40% of Load to Salton Sea	20% of Load to Salton Sea
VOCs	Some detected	Non-detect
Trash	> 150 cu yds/year	> 150 cu yds/year
Pesticides	Detected	Still a problem

Source: http://www.swrcb.ca.gov/coloradoriver/water_issues/programs/new_river/nr_intro.shtml

The Salton Sea Transboundary Watershed encompasses over one third of the region and is the priority watershed for flows to the New River. Replenishment of the Salton Sea is predominantly from farm drainage and seepage. The gross contributing watershed comprises about 7,500 square miles.

According to the RWQCB, the primary water quality problem facing Salton Sea is increasing salinity. The salinity of the sea was approximately 44,000 mg/l in 1992. Most of the recreationally important species of fish inhabiting the sea were originally transplanted from the Gulf of California where the salinity level is approximately 35,000 mg/l. Previous tests have indicated that spawning of these transplanted fishes is adversely affected at salinity levels above 40,000 mg/l. Because the Salton Sea is in a closed basin and is replenished primarily by agricultural drainage water containing approximately 3,000 mg/l total dissolved solids, the salinity will continue to rise at about 1-2% per year unless a means of salinity control is devised and implemented. Any reduction in inflows to the sea will cause the salinity to rise more rapidly. The volumes of flow contributed from Mexico and from stormwater runoff will also have a bearing on the rate of salinity increase in Salton Sea.

Another water quality issue facing Salton Sea is the significant input of selenium from agriculture return flows. Relatively elevated levels were first analyzed for and detected in Salton Sea fish during 1984, and have continued to be detected in 1991 (the last year for which data is available). Most of the selenium entering the Salton Sea comes originally from the Colorado River water which flows into the Salton Sea watershed via the All American Canal and via

Mexican canals. The majority of this selenium becomes concentrated by agricultural usage and is discharged from subsurface tile drains in the Imperial Valley into surface drains which eventually flow into Salton Sea.

Wastewater collection generated in the proposed project areas is conveyed to the Zaragoza WWTP, in Mexicali with capacity to treat up to 1300 lps (29 MGD). Treated effluent is discharged in the New River. The Zaragoza WWTP complies with the Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges into national waters and territories. The following table shows the quality report for the first and third quarter of 2012.

Table 3-5 Effluent Quality Zaragoza WWTP in Mexicali

Parameter	Units	Average Monthly Limit [†]	March 2012	September 2012
Biochemical Oxygen Demand	mg/l	150	46.70	50.70
Oil and Grease	mg/l	25	<9	<9
Total Coliform	MPN/100 ml	2000	315	63.70
Total Suspended Solids	mg/l	125	48	66
Settleable Solids	mg/l	2	<0.1	<0.1
Floating matter	mg/l	ND	ND	ND
Temp	°C	40	18.1	27.1
pH	Units	5-10	7.91	8.04
Phosphorous	mg/l	30	6.85	5.71
Nitrogen	mg/l	60	52.8	27.24
Arsenic	mg/l	0.2	<0.010	<0.010
Cadmium	mg/l	0.2	<0.2	<0.05
Cyanide	mg/l	2	NA	<0.003
Copper	mg/l	6	<0.2	<0.05
Cr	mg/l	1	<0.5	<0.05
Hg	mg/l	0.01	<0.005	<0.005
Ni	mg/l	4	<0.5	<0.5
Pb	mg/l	0.4	<0.2	<0.1
Zn	mg/l	20	<0.1	<0.1

Source: www.cespm.gob.mx

3.6 Biological Resources

3.6.1 Definition of Resource

Biological resources include native or naturalized plants and animals and the habitats in which they occur. Sensitive plant and wildlife species are subject to regulations under the authority of the U.S.FWS and the California Department of Fish and Game (CDFG). Federal and state lists of species officially listed or proposed as threatened or endangered are subject to permit restrictions regulated under Section 7 of the Federal Endangered Species Act. For the

purposes of this EA, biological resources within Imperial County and near the international boundary were examined.

3.6.2 Environmental Setting

3.6.2.1 Flora

The predominant vegetation community in the Imperial Valley is cultivated/ruderal and is associated with agricultural and other human activities including development. This community consists of orchards, cropland and pastureland. The term "ruderal" refers to the type of vegetation which grows in response to human disturbance: along roadsides, at the borders of cultivated fields, and in canal riparian/levee areas. This generally weedy vegetation can intrude rapidly into moist and periodically disturbed areas, and includes such plants as cheeseweed, shepherds purse, white horse-nettle, saltbush, saltcedar, Russian thistle, Bermuda grass, and other opportunistic plants.

Historically, the dominant vegetation community in the region was Sonoran Creosote Bush Scrub. However, most of the native plant species of the Imperial Valley were replaced by agricultural activity throughout the 20th Century.

Currently the Imperial Valley consists largely of non-native and introduced plants, including date palms, a variety of grasses, and ornamental trees and shrubs

In undeveloped areas, the flora of Imperial County is generally divided into eleven plant communities: desert riparian, fresh emergent wetlands, alluvial washes, palm oases, desert scrub, desert succulent scrub, alkali desert scrub, sand dune, mixed chaparral, pinyon-juniper, and montane hardwood-conifer. The landscape in the immediate vicinity of the proposed project sites in Mexicali I consists of Sonoran Creosote Bush Scrub interspersed with irrigated agricultural fields and irrigation canals (City of Calexico 2006). This vegetation community is dominated by creosote bush (*Larrea tridentata*) and burro-weed (*Ambrosia dumosa*). Typical community characteristics include low species diversity and dispersed occurrence of shrubs. Other land within the project area is developed to support roads, canals, or residential communities.

3.6.2.2 Fauna

Fish

The canal system in Imperial County has created an aquatic habitat within a naturally arid environment. Populations of numerous fish species live in the canals although practically all are introduced species. The most abundant species in the canals include largemouth bass, smallmouth bass, flathead and channel catfish, yellow bullhead, bluegill, red ear sunfish, black crappie, carp, striped bass, threadfin shad, and red shiner.

Amphibians

Amphibian species found adjacent to and within freshwater habitats in Imperial County include the Colorado River toad, Couch's spadefoot toad, red-spotted toad, Woodhouse's toad, lowland leopard frog, and bullfrog. Typical reptile species in the county include the chuckwalla, banded and barefoot geckos, western iguana, desert horned lizard, flat-tailed horned lizard, zebra-tailed lizard, long-tailed brush lizard, long-nosed leopard lizard, Colorado fringe-toed lizard, collared lizard, side-blotched lizard, desert spiny lizard, western whiptail lizard, western rattlesnake, sidewinder, red racer, common kingsnake, gopher snake, checkered garter snake, western

blind snake, western patch-nosed snake, western ground snake, desert glossy snake, rosy boa, speckled rattlesnake, and desert tortoise.

Birds

Imperial County is located on one of the most important flyway corridors in North America for migrant waterfowl, shorebirds, and songbirds. The greatest number and diversity of birdlife in the region occur in the spring and fall months. In addition to habitats associated with the Salton Sea, the irrigation and canal system in the valley has created wetlands that attract numerous bird species. Further, state and local agencies are working to convert fallow agricultural fields within the County to manage marsh sites—these sites provide excellent avian habitat. Some bird species that are associated with agricultural areas include waterfowl, gulls, herons, cranes, ibises, egrets, doves, Gambel's quail, sparrows, finches, and juncos. Raptors in the area include the marsh hawk, red-tailed hawk, and burrowing owl. In contrast, the diversity of birds resident in the desert scrub habitats throughout the county is relatively low. The most common bird species found in desert scrub is the black-throated sparrow.

Mammals

Small rodent species occur in the marginal habitats found along agricultural canals and drains, roadsides and around buildings. Common species in the area include the western harvest mouse, house mouse, Norway and black rat, valley pocket gopher, muskrat, striped skunk, spotted skunk, raccoon, and brush rabbit. Other mammals found in Imperial County include cactus mouse, deer mouse, desert pocket mouse, spiny pocket mouse, little pocket mouse, long-tailed pocket mouse, desert kangaroo rat, Merriam kangaroo rat, desert woodrat, white-throated woodrat, Arizona cottonrat, hispid cottonrat, white-tailed antelope, roundtail ground squirrel, jackrabbits, cottontails, desert shrew, desert kit fox, gray fox, coyote, badger, bobcat, mountain lion, wild burrow, mule deer, and bighorn sheep.

Endangered or Threatened Species

Several plant and animal species have been found in Imperial County and throughout California that are federally or state-listed as threatened or endangered. Several avian species are state-listed as endangered, including western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), elf owl (*Micrathene whitneyi*), Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chrysoides*), Arizona Bell's vireo (*Vireo bellii arizonae*), and least Bell's vireo (*Vireo bellii pusillus*). Least Bell's vireo is also federally listed as endangered. State-listed and federally-listed endangered fish include razorback sucker (*Xyrauchen texanus*), and desert pupfish (*Cyprinodon macularius*). The peninsular bighorn sheep (*Ovis canadensis nelsoni dps*) is federally listed as endangered. All state- and federally-listed animals found in Imperial County are presented in Table 3-6.

There are 16 plant species of concern in Imperial County. Three species are state-listed as endangered: San Diego button-celery (*Eryngium aristulatum* var. *parishii*), Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*), and Peirson's milk-vetch (*Astragalus madalenae* var. *peirsonii*). All state- and federally-listed plants found in the County are listed in Table 3-7.

To a large extent, the City of Calexico and surrounding areas—including the areas adjacent the US-Mexico border north of Mexicali I—have been disturbed by human activity and do not provide habitat to support sensitive plant or wildlife species. The New River and undeveloped land adjacent to the river, as well as the agricultural ditches and canals in the county, provide

the only potential habitat for sensitive wildlife species. Similarly, the occurrence potential for most sensitive plant species in the area is considered low due to the high amount of soil disturbance from long-standing agricultural activities.

3.6.3 Critical Habitat

Twenty-one thousand acres of critical habitat have been designated by the U.S.FWS for the Peirson's milk-vetch in the Algodones Dunes within the Imperial Sand Dunes Recreation Area in Imperial County. In addition, critical habitat has been designated for the peninsular bighorn sheep within the Painted Gorge Area of the Coyote Mountains in Imperial County. Both these areas are several miles from the project site in Mexicali I, and no critical habitat areas have been designated within or immediately surrounding the City of Calexico.

Table 3-6 Animal Species Occurring in Imperial County

Scientific Name	Common Name	Federal Status	CADFG Status
Amphibians			
<i>Incilius alvarius</i>	Sonoran desert toad	None	SSC
<i>Scaphiopus couchii</i>	Couch's spadefoot	None	SSC
<i>Lithobates pipiens</i>	Northern leopard frog	None	SSC
<i>Lithobates yavapaiensis</i>	Lowland Leopard frog	None	SSC
Birds			
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Delisted	FP
<i>Ixobrychus exilis</i>	least bittern	None	SSC
<i>Ardea herodias</i>	great blue heron	None	
<i>Ardea alba</i>	great egret	None	
<i>Plegadis chihi</i>	white-faced ibis	None	WL
<i>Accipiter cooperii</i>	Cooper's hawk	None	WL
<i>Buteo regalis</i>	ferruginous hawk	None	WL
<i>Aquila chrysaetos</i>	golden eagle	None	FP WL
<i>Falco columbarius</i>	merlin	None	WL
<i>Falco mexicanus</i>	prairie falcon	None	WL
<i>Laterallus jamaicensis coturniculus</i>	California black rail	None	FP
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail	Endangered	FP
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	Threatened	SSC
<i>Charadrius montanus</i>	mountain plover	None	SSC
<i>Larus californicus</i>	California gull	None	WL
<i>Gelochelidon nilotica</i>	gull-billed tern	None	SSC
<i>Hydroprogne caspia</i>	Caspian tern	None	
<i>Rynchops niger</i>	black skimmer	None	SSC
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Candidate	
<i>Micrathene whitneyi</i>	elf owl	None	
<i>Athene cunicularia</i>	burrowing owl	None	SSC
<i>Asio flammeus</i>	short-eared owl	None	SSC
<i>Melanerpes uropygialis</i>	Gila woodpecker	None	
<i>Colaptes chrysoides</i>	gilded flicker	None	

Scientific Name	Common Name	Federal Status	CADFG Status
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Endangered	
<i>Pyrocephalus rubinus</i>	vermillion flycatcher	None	SSC
<i>Myiarchus tyrannulus</i>	brown-crested flycatcher	None	WL
<i>Polioptila melanura</i>	black-tailed gnatcatcher	None	
<i>Toxostoma crissale</i>	Crissal thrasher	None	SSC
<i>Toxostoma lecontei</i>	Le Conte's thrasher	None	SSC
<i>Lanius ludovicianus</i>	loggerhead shrike	None	SSC
<i>Vireo bellii arizonae</i>	Arizona bell's vireo	None	
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered	
<i>Oreothlypis luciae</i>	Lucy's warbler	None	SSC
<i>Dendroica petechia sonorana</i>	Sonoran yellow warbler	None	SSC
<i>Dendroica petechia brewsteri</i>	yellow warbler	None	SSC
<i>Icteria virens</i>	yellow-breasted chat	None	SSC
<i>Piranga rubra</i>	summer tanager	None	SSC
<i>Junco hyemalis caniceps</i>	gray-headed junco	None	WL
Fish			
<i>Ptychocheilus lucius</i>	Colorado pikeminnow	Endangered	FP
<i>Xyrauchen texanus</i>	razorback sucker	Endangered	FP
<i>Cyprinodon macularius</i>	desert pupfish	Endangered	
Mammals			
<i>Macrotus californicus</i>	California leaf-nosed bat	None	SSC
<i>Myotis yumanensis</i>	Yuma myotis	None	
<i>Myotis velifer</i>	cave myotis	None	SSC
<i>Myotis ciliolabrum</i>	western small-footed myotis	None	
<i>Myotis occultus</i>	Arizona Myotis	None	SSC
<i>Lasiurus cinereus</i>	hoary bat	None	
<i>Lasiurus xanthinus</i>	western yellow bat	None	SSC
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	SSC
<i>Antrozous pallidus</i>	pallid bat	None	SSC
<i>Eumops perotis californicus</i>	western mastiff bat	None	SSC
<i>Nyctinomops femorosaccus</i>	pocketed free-tailed bat	None	SSC
<i>Nyctinomops macrotis</i>	big free-tailed bat	None	SSC
<i>Perognathus longimembris bangsi</i>	Palm Springs pocket mouse	None	SSC
<i>Chaetodipus fallax pallidus</i>	pallid San Diego pocket mouse	None	SSC
<i>Onychomys torridus ramona</i>	southern grasshopper mouse	None	SSC
<i>Sigmodon hispidus eremicus</i>	Yuma hispid cotton rat	None	SSC
<i>Sigmodon arizonae plenus</i>	Colorado River cotton rat	None	SSC
<i>Neotoma albigula venusta</i>	Colorado Valley woodrat	None	
<i>Taxidea taxus</i>	American badger	None	SSC
<i>Puma concolor browni</i>	Yuma mountain lion	None	SSC

Scientific Name	Common Name	Federal Status	CADFG Status
<i>Ovis canadensis nelsoni</i> DPS	peninsular bighorn sheep	Endangered	FP
<i>Ovis canadensis nelsoni</i>	Nelson's bighorn sheep	None	
Reptiles			
<i>Gopherus agassizii</i>	desert tortoise	Threatened	
<i>Coleonyx switaki</i>	barefoot gecko	None	
<i>Heloderma suspectum cinctum</i>	banded gila monster	None	SSC
<i>Phrynosoma mcallii</i>	flat-tailed horned lizard	None	SSC
<i>Uma notata</i>	Colorado Desert fringe-toed lizard	None	SSC
<i>Crotalus ruber</i>	red-diamond rattlesnake	None	SSC

FP = Fully Protected , SSC = Species of Special Concern, WL= Watch List Source: CDFG 2013

Table 3-7 Plant Species Occurring in Imperial County

Scientific Name	Common Name	Federal Status	California Status	California Native Plant Society (CNPS) List
<i>Chaenactis carphoclinia</i> var. <i>peirsonii</i>	Peirson's pincushion	None	None	1B.3
<i>Palafoxia arida</i> var. <i>gigantea</i>	giant spanish-needle	None	None	1B.3
<i>Streptanthus campestris</i>	southern jewel-flower	None	None	1B.3
<i>Cylindropuntia munzii</i>	Munz's cholla	None	None	1B.3
<i>Acmispon haydonii</i>	pygmy lotus	None	None	1B.3
<i>Lupinus excubitus</i> var. <i>medius</i>	Mountain Springs bush lupine	None	None	1B.3
<i>Salvia greatae</i>	Orocopia sage	None	None	1B.3
<i>Helianthus niveus</i> ssp. <i>tephrodes</i>	Algodones Dunes sunflower	None	Endangered	1B.2
<i>Xylorhiza orcuttii</i>	Orcutt's woody-aster	None	None	1B.2
<i>Symphotrichum defoliatum</i>	San Bernardino aster	None	None	1B.2
<i>Chamaesyce platysperma</i>	flat-seeded spurge	None	None	1B.2
<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	Peirson's milk-vetch	Threatened	Endangered	1B.2
<i>Pholisma sonorae</i>	sand food	None	None	1B.2
<i>Linanthus maculatus</i>	Little San Bernardino Mtns. linanthus	None	None	1B.2
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	Endangered	Endangered	1B.1
<i>Abronia villosa</i> var. <i>aurita</i>	chaparral sand-verbena	None	None	1B.1
<i>Pilostyles thurberi</i>	Thurber's pilostyles	None	None	4.3
<i>Opuntia wigginsii</i>	Wiggins' cholla	None	None	3.3
<i>Matelea parvifolia</i>	spear-leaf matelea	None	None	2.3
<i>Geraea viscida</i>	sticky geraea	None	None	2.3
<i>Hulsea mexicana</i>	Mexican hulsea	None	None	2.3
<i>Malperia tenuis</i>	brown turbans	None	None	2.3

Scientific Name	Common Name	Federal Status	California Status	California Native Plant Society (CNPS) List
<i>Bursera microphylla</i>	little-leaf elephant tree	None	None	2.3
<i>Chamaesyce arizonica</i>	Arizona spurge	None	None	2.3
<i>Calliandra eriophylla</i>	pink fairy-duster	None	None	2.3
<i>Pholistoma auritum</i> var. <i>arizonicum</i>	Arizona pholistoma	None	None	2.3
<i>Mentzelia hirsutissima</i>	hairy stickleaf	None	None	2.3
<i>Herissantia crispa</i>	curly herissantia	None	None	2.3
<i>Polygala acanthoclada</i>	thorny milkwort	None	None	2.3
<i>Ipomopsis tenuifolia</i>	slender-leaved ipomopsis	None	None	2.3
<i>Colubrina californica</i>	Las Animas colubrina	None	None	2.3
<i>Pseudorontium cyathiferum</i>	Deep Canyon snapdragon	None	None	2.3
<i>Castela emoryi</i>	Emory's crucifixion-thorn	None	None	2.3
<i>Lycium parishii</i>	Parish's desert-thorn	None	None	2.3
<i>Ayenia compacta</i>	California ayenia	None	None	2.3
<i>Digitaria californica</i> var. <i>californica</i>	Arizona cottontop	None	None	2.3
<i>Carnegiea gigantea</i>	saguaro	None	None	2.2
<i>Koeberlinia spinosa</i> ssp. <i>tenuispina</i>	slender-spined all-thorn	None	None	2.2
<i>Ditaxis claryana</i>	glandular ditaxis	None	None	2.2
<i>Chamaesyce abramsiana</i>	Abrams' spurge	None	None	2.2
<i>Croton wigginsii</i>	Wiggins' croton	None	Rare	2.2
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	None	None	2.2
<i>Astragalus sabulorum</i>	gravel milk-vetch	None	None	2.2
<i>Senna covesii</i>	Cove's cassia	None	None	2.2
<i>Nama stenocarpum</i>	mud nama	None	None	2.2
<i>Teucrium cubense</i> ssp. <i>depressum</i>	dwarf germander	None	None	2.2
<i>Eucnide rupestris</i>	annual rock-nettle	None	None	2.2
<i>Mentzelia puberula</i>	Darlington's blazing star	None	None	2.2
<i>Chylismia arenaria</i>	sand evening-primrose	None	None	2.2
<i>Nemacaulis denudata</i> var. <i>gracilis</i>	slender cottonheads	None	None	2.2
<i>Penstemon pseudospectabilis</i> ssp. <i>pseudospectabilis</i>	desert beardtongue	None	None	2.2
<i>Selaginella eremophila</i>	desert spike-moss	None	None	2.2
<i>Mentzelia tricuspis</i>	spiny-hair blazing star	None	None	2.1
<i>Ipomopsis effusa</i>	Baja California ipomopsis	None	None	2.1
<i>Imperata brevifolia</i>	California satintail	None	None	2.1
<i>Hymenoxys odorata</i>	bitter hymenoxys	None	None	2
List 1B	Plants Rare, Threatened or Endangered in California and Elsewhere			
List 2	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere			
List 3	Plants About Which We Need More Information, A Review List			

Source: CDFG 2013

3.7 Cultural Resources

3.7.1 Definition of Resource

Cultural resources represent and document activities, accomplishments, and traditions of previous civilizations and link current and former inhabitants of an area. Depending on their conditions and historic use, these resources may provide insight to living conditions in previous civilizations and may retain cultural and religious significance to modern groups.

Archaeological resources comprise areas where prehistoric or historic activity measurably altered the earth or deposits of physical remains (e.g., arrowheads, bottles) discovered therein. Architectural resources include standing buildings, districts, bridges, dams, and other structures of historic or aesthetic significant. Traditional cultural resources can include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the persistence of traditional culture.

For the purposed of this EA, a general cultural history for the City of Calexico and Imperial County border region were reviewed.

3.7.2 Environmental Setting

3.7.2.1 Prehistoric Setting

The earliest extensive human remains known in the area in and around the City of Calexico are today identified as the *San Dieguito Culture* and date to approximately 10,000 years before present. Archaeologists refer to the beginning of the San Dieguito Culture as the beginning of the *Archaic Period*. The distinctive artifacts from the San Dieguito Culture are large, relatively crude projectile points, scrapers, bone awls, and choppers. By the *Middle Archaic Period* the local Native Americans took advantage of the hard seed resources of the coastal sage scrub and chaparral ecological communities. The *Late Prehistoric Tradition* is marked with coastal camps containing as many as 1,500 persons. In inland Imperial County, the *Cuyamaca Culture Complex* developed during this time. Although similar to the San Luis Rey peoples, the Cuyamaca's segregated their cemeteries from their dwelling areas and used grave markers, placed cremations in urns, produced mortuary goods and ceramics. The Cuyamaca Complex people were apparently the precursors of the people living in San Diego at the time of European arrival in California.

According to the County of Imperial General Plan, approximately 7,000 prehistoric archaeological sites have been recorded in Imperial County as a whole. Seven sites are located in the general vicinity of the City of Calexico.

3.7.2.2 Historic

In 1540, Hernando de Alarcon and his Spanish soldiers were the first Europeans to discover Alta California, near the present intersection of Interstate 8 and Highway 186. Over the next 350 years, the early history of Imperial County centered on exploration, travel, and transportation. Thousands of early missionaries, travelers, explorers, and settlers traversed the arid desert after crossing the Colorado River on the way to coastal southern California.

The *Spanish Period* extended from 1769 to 1821. Upon establishing Mission San Diego to the west in 1769 and a chain of missions along the Pacific Coast, a land route between Sonora (in modern-day Mexico) and the coast became critical for establishment of the Spanish frontier. The first known Spaniard to see potential routes through the Peninsular Range was Father Francisco Garces in 1771, although he did not venture north or west from near Calexico and Mount Signal. The first European to enter the Salton Trough was Pedro Fages, a Captain Commander at Mission San Diego who reached the Imperial Valley from San Diego in 1772 when pursuing deserters. Captain Juan Bautista de Anza of the presidio at Tubac led an expedition in 1774-1775 from Baja California across the present U.S.-Mexico border near the base of Mount Signal and through western Imperial County, north to Borrego Valley. This route later became the Anza Trail, which is a significant cultural resource with several historical markers established along the trail. The Anza Trail crosses the U.S.-Mexico border west of Calexico.

The *Mexican Period* extended from 1821 to 1848. This period was a result of renewed interest to establish an overland route from Sonora to the California coast. The Sonora Road was established in 1825 as the official mail route from Mexico to San Diego and Temecula. This route passes alongside the New River, near Calexico. There are few known historic sites from the Mexican Period (City of Calexico 2006).

3.8 Socioeconomics

3.8.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Human population is affected by regional birth and death rates as well as net in- or out-migration. Economic activity typically comprises employment, personal income, and industrial growth. Impacts on these two fundamental socioeconomic indicators can also influence other components such as housing availability and public services provision.

3.8.2 Environmental Setting

3.8.2.1 Imperial County

The 2011 population for Imperial County was 177,057, which was a 1.4% increase from 2010 (U.S. Census 2012). The median household income is \$38,685 for 2006 to 2010 (US Census 2012). The unemployment rate for the County was 28.2% for June 2012 (CA EDD 2012). The main source of employment in Imperial County is government and government enterprises followed by retail sales (CA EDD 2012).

3.8.2.2 Calexico

At the time of the 2010 census, the population of Calexico was 38,572 (U.S. Census Bureau 2012). The July 2012 unemployment rate in Calexico was 27.4% (California Employment Development Department 2012).

3.8.2.3 Mexicali

At the time of the 2010 Mexico Census, the population of Mexicali was 689,775 with an estimated annual growth rate of 4%. The unemployment rate in Mexicali has been historically lower than the overall unemployment rate of Baja California.

3.9 Environmental Justice and Protection of Children

3.9.1 Definition of Resource

In 1994, Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, was issued to focus attention of federal agencies on human health and environmental conditions in minority and low-income communities and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed.

Because children may suffer disproportionately from environmental health risks and safety risks, Executive Order 13045, *Protection of Children from Environmental Health and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that federal agencies' policies, programs, activities, and standards address environmental health risks and safety risks to children.

For the purposes of this EA, Environmental Justice and the Protection of Children were examined for Imperial County and the City of Calexico.

3.9.2 Environmental Setting

In June 2006, the RWQCB implemented an amendment to *Water Quality Control Plan of the Colorado River Basin* to establish TMDL and Implementation Plan for Trash in the New River at the International Boundary since water quality objectives for the New River are not being met in the U.S. section of the river. Under this amendment, the New River is also designated as an Environmental Justice Pilot Project for the California EPA with the goal of developing a children's environmental risk reduction plan through a Regional Advisory Group comprising community members, Tribal/local/federal government and the Mexican government. The Project seeks to reduce the risk to children's health by increasing awareness to parents and children of the health hazards associated with the New river. The Project's long-term approach is to establish commitments by the primary polluters to take measures to reduce the introduction of contaminants in to the New River and take steps toward the immediate remediation of waterways determined to have the highest concentration of pollutants affecting human health.

On May 20, 2010, the Executive Officer of the CRWQCB reaffirmed the New River as an Environmental Justice Pilot Project for California. The goal of the pilot project is to develop a children's environmental risk reduction plan through a Regional Advisory Group comprised of community members, tribal/local/federal government, and the Mexican government (SWRCB 2012).

3.9.3 Minority and Low-Income Populations

Based on data contained in the 2010 United States Census Bureau, the percentage of population in the City of Calexico below the poverty level is 22.1%. This is greater than the percentage of the population within California as a whole (13.7%).

The percentage of minority residents within Calexico is 47.3%. Based on 2010 Census information 0.3% of the population in Calexico is *African American*, 0.5% is *American Indian*, and 1.3% is *Asian*. According to the 2010 United States Census Bureau, *Persons of Latino or Hispanic Origin* within Calexico is 96.8%.

3.9.4 Protection of Children

In 2010, 31.1% of the population in Calexico was under the age of 18. This compares to 25% for the State of (U.S. Census 2010). There are no significant concentrations of children (e.g., at schools, day care centers, etc.) along the international boundary area north of the Mexicali I project sites.

3.10 Geological Resources

3.10.1 Definition of Resource

Geological resources typically consist of surface and subsurface materials and their inherent properties. Principal geologic factors affecting the ability to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), soil stability and topography.

The term *soil*, in general, refers to unconsolidated materials overlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support man-made structures and facilities. Soils typically are described in terms of their complex type, slope, physical characteristics, and relative compatibility or constraining properties with regard to particular construction activities and types of land use.

Topography is the change in elevation over the surface of a land area. An area's topography is influenced by many factors, including human activity, underlying geologic material, seismic activity, climatic conditions, and erosion. A discussion of topography typically encompasses a description of surface elevations, slope, and distinct physiographic features (e.g., mountains) and their influence on human activities.

For the purposes of this EA, geological resources were examined for the Imperial Valley.

3.10.2 Environmental Setting

The project area is located at the southern limit of the Imperial Valley, which lies within the Salton Trough, a major structural trough bounded by the Chocolate Mountains to the northeast and the Peninsular Ranges of Southern California and Baja California on the west. The Salton Sea is the lowest area of the depression and serves as an undrained sink collecting surface water flows, including the terminus of the New River. The Salton Sea separates the Imperial Valley from the Coachella Valley to the north. The Trough is a structural extension of the Gulf of California. Deposits marking the shoreline of Lake Cahuilla, which formed in prehistoric time, are evident around the Imperial Valley area.

The Imperial Valley is located in a seismically active region and is subject to events along active major regional faults. The most regionally active faults in the area include the San Andreas Fault, which borders the east side of the Salton Trough, and the San Jacinto and Elsinore faults, which form an extension of the San Andreas Fault to the northwest. The Superstition Mountain Fault, located east of the Elsinore Fault, is not considered a principal active fault in California. The Superstition Hills Fault, located just east of the Superstition Mountain Fault, is considered a principal active fault with historic surface rupture. Other smaller faults exist throughout the Salton Trough, including the Imperial Fault. The Imperial Valley region has experienced a higher number of small to moderate earthquakes than any other section along the San Andreas

Fault, and three earthquakes of magnitude 6, 6.7, and 7.1 have occurred along the Imperial Fault.

3.10.2.1 Alluvium, Sand Dune, and Lacustrine Soils

The Imperial Valley comprises lacustrine (lake-deposited), alluvial (stream-deposited), and aeolian (wind-blown) materials. Lakebed sediments, which are fine and moderately fine-textured, were deposited from the bed of the prehistoric Lake Cahuilla. Additional sources of sedimentation include aeolian deposition and erosion of adjacent highlands. The entire sequence of alluvial, lacustrine, and aeolian sediments is underlain by the Imperial Formation, which rests on granitic and metamorphic basement rocks

Salinity control is the major soils management concern in the arid Imperial Valley. More than one ton of salt is left in the land with every acre-foot of irrigation water, and the accumulation of salt in the root zone can cause soils to become too saline for crop growth. Soil erosion is not a serious concern in this area, although limited areas next to river bluffs and canyons are subject to erosion hazards.

No significant or unique geologic or topographic features occur in the border area north of Mexicali I.

3.11 Land Use and Infrastructure

3.11.1 Definition of Resource

Land use can be separated into two major categories: *natural* and *human-modified*. Natural land uses include topography, vegetation and animal habitats. Human-modified land uses can be classified as residential, commercial, industrial, communications and utilities, agricultural, institutional, recreational, and other developed areas. Land use is regulated by management plans, policies, regulations, and ordinances that determine the type and extent of land use allowable in specific areas and protect specially designated or environmentally-sensitive areas.

For the purposes of this EA, land use focuses on Imperial County and the City of Calexico because of their proximity to the project area.

3.11.2 Environmental Setting

3.11.2.1 Existing Land Uses

Mexicali – which had an estimated population in 2010 of 689,775 people and is the capital of Baja California – is located in the U.S.-Mexico border region abutting the international boundary just south of the City of Calexico. Mexicali has been experiencing rapid population growth and associated urban and suburban development during the past 20 years. Much of this growth stems from the City's and region's strong economic outlook which attracts in-migrants from throughout Mexico. The majority of this growth has occurred and is projected to continue to occur to the east and south of the historically urbanized center into areas previously characterized by low population densities and agricultural, rangeland, or undeveloped use.

Imperial County - covers 4,482 square miles. The county comprises seven incorporated cities: Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, and Westmorland. The majority of the population in the county live in these incorporated areas. Populations within the unincorporated areas of the county are primarily concentrated in the agricultural communities of

Heber, Niland, and Seely. Approximately 74% of the county is undeveloped, and under federal ownership and jurisdiction; 18.2% of the land is under agricultural cultivation, and 7% is covered by the Salton Sea (2008 Imperial County General Plan).

The City of Calexico is located adjacent to the U.S.-Mexico border. According to the City of Calexico *General Plan*, approximately 2,060 acres of Calexico consist of residential uses; 290 acres are commercially developed; 255 acres are used for industrial purposes. The remaining acreage in the City consists of vacant areas, parks, schools, and agricultural/open spaces (City of Calexico 2006).

3.11.2.2 Land Use Plans and Policies

Plan Municipal de Desarrollo 2011-2013

The Mexicali Municipal Development Plan was updated for the 2011-2013 period. The plan includes five policy areas with corresponding themes and lines of action. The *Sustainable Development* policy area includes thematic areas such as *Planning and Urban Development* that aims to improve public infrastructure and strengthen environmental planning.

City of Calexico General Plan

The Final *General Plan Update* was completed in February 2007 and the Final *Environmental Impact Report for the General Plan Update* was released in 2007. The Plan indicates the city's desire to continue to provide opportunities for *maquiladora* establishment in Calexico. A *maquiladora* is a factory that imports materials and equipment on a duty-free and tariff-free basis for assembly or manufacturing and then re-exports the assembled product usually back to the originating country.

The plan also encourages commercial development to support the growing residential areas in Calexico as well as the substantial number of visitor and commuters who enter from Mexicali. The Plan encourages development to respond to the less-used higher capacity eastern border crossing and alterations to the main (i.e., downtown) border crossing intended to redirect automobile, truck and pedestrian traffic.

Imperial County General Plan

The *Land Use Element* of the *Imperial County General Plan* was updated in 2008. The purpose the *Land Use Element* to identify the goals, policies and standards of the General Plan that will guide the physical growth of Imperial County, including the public facilities necessary to support such growth. The *Land Use Element* of the *General Plan* contains a series of objectives and goals intended to guide development programs. The County's goal for commercial agriculture includes "preserving commercial agriculture as a prime economic force" and "discourag[ing] the location of incompatible development adjacent to productive agricultural lands."

As part of the protection of environmental resources goals, the County seeks to "identify and preserve significant natural, cultural, and community character resources and the County's air and water quality." Objectives listed under this goal include "coordinat[ing] with the Republic of Mexico to clean up the polluted New River and Alamo River in order to ensure public health and safety as well as recreational resources" and "incorporat[ing] the strategies of the Imperial County Air Quality Attainment Plan in land use planning decisions."

SECTION 4 ENVIRONMENTAL CONSEQUENCES

4.1 Air Quality

The 1990 Amendments to the CAA require that federal agency activities conform to the State Implementation Plan (SIP) with respect to achieving and maintaining attainment of NAAQS and addressing air quality impacts. The EPA *General Conformity Rule* requires that a conformity analysis be performed which demonstrates that a proposed action does not:

- Cause or contribute to any violation of any NAAQS in the area;
- Interfere with provisions in the SIP for maintenance or attainment of any NAAQS;
- Increase the frequency or severity of any existing violation of any NAAQS;
- Delay timely attainment of any NAAQS, any interim emission reduction goals, or other milestones included in the SIP.

Provisions in the *General Conformity Rule* allow for exemptions from performing a conformity determination only if total emissions of individual nonattainment area pollutants resulting from the proposed action fall below the significant (*de minimis*) threshold values.

4.1.1 Impacts of the Preferred Alternative

Imperial County is designated as a federal nonattainment area for the 8-hour ozone standard, as well as a nonattainment area for PM₁₀ and PM_{2.5}. The City of Calexico is designated as a nonattainment area for carbon monoxide, while the remainder of the county is designated unclassified for the state standard. The criteria for determining significant or adverse air quality impacts under the General Conformity Rule, and the need to determine appropriate mitigation measures for a proposed project, is based on the significance thresholds for criteria pollutants and their precursors for which an area is designated as being a nonattainment area is given in 40 CFR 51.853.

The Preferred Alternative would be constructed and operated entirely within Mexico. The proposed project involves the rehabilitation of 9,700 meters of failing wastewater collection pipeline within the Colonias Loma Linda and Esperanza within the Mexicali I planning area. The possibility of short-term transboundary air impacts exists, as a result of blowing dust from ground disturbance near the border. It is unlikely however that either construction or operational emissions resulting from the transport of these pollutants will result in measurable impacts to air quality in the U.S. In addition, dust control measures will be implemented during construction to reduce air emissions. Therefore, direct and indirect impacts during construction would be less than significant. The proposed project areas are located approximately 1.5 miles south of the U.S. and Mexico border (see Figure 2.2).

Emissions associated with the proposed project are expected to be well below the significance thresholds under the General Conformity Rule, and so a General Conformity analysis is not required.

4.1.2 No Action Alternative

Under the No Action Alternative, no new wastewater collection pipeline would be constructed. Therefore, air quality would remain as described in Section 3.1, Air Quality. If this alternative were selected, there would be no impacts with regard to air quality.

4.2 Noise

Noise impact analyses address potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased exposure to unacceptable noise levels). Impacts are also assessed in the context of the goals of the *City of Calexico Noise Ordinance* and the *Imperial County General Plan Noise Element*.

4.2.1 Impacts of the Preferred Alternative

The Preferred Alternative proposes construction of wastewater collection pipeline in the Mexicali I. Implementation of the Preferred Alternative would include trenching, soil movement, pipe laying, and other construction activities.

Noise generation during construction would be characteristic of use of construction equipment (i.e. whacker packer, pneumatic drills, excavators, backhoes, etc.). Construction would commence in Mexico, immediately south of the international border.

Since no construction would occur in the U.S. and construction noise generated by the Preferred Alternative in Mexicali I would be short-term in nature and would not be heard in the U.S., no short-term direct or indirect construction noise impacts are anticipated to occur.

Once operational, the wastewater collection system would be buried and would not generate noticeable noise emissions; therefore, no long-term direct or indirect operational noise would occur in the U.S. related to implementation of the proposed action.

4.2.2 No Action Alternative

Under the No Action Alternative, CESPMS would not provide new wastewater collection pipeline, and the existing system would continue to have periodic failures and emergency repairs.

4.3 Floodplains

Determination of the significance of potential impacts to floodplains is based on their presence or absence in the areas in areas that would be impacted by project implementation. An impact to U.S. floodplains would be significant if it would negatively affect a floodplain's capacity for flood and sediment storage or flood water conveyance per EO 11988, Floodplains Management.

4.3.1 Impacts of the Preferred Alternative

Under the Preferred Alternative, CESPMM would install pipeline within the urban setting of the Colonias of Loma Linda and Esperanza within the Mexicali I planning area. No construction would occur within the U.S. Construction in the Mexicali I area would occur outside the floodplain of the New River. Since no construction activity would directly impact floodplains in the U.S. and since long-term operation would not discharge effluent into U.S. waters, no direct or indirect impacts to floodplains in the U.S. would occur under implementation of the Preferred Alternative.

4.3.2 No Action Alternative

If the No Action Alternative were selected, no construction or long-term operation of new wastewater collection pipeline would occur in the Mexicali I area; therefore, there would be no activities that would result in either direct or indirect impacts to floodplains.

4.4 Wetlands

Determination of the significance of potential impacts to wetlands is based on their presence or absence in the areas in areas that would be impacted. EO 11990, *Protection of Wetlands*, and the CWA have regulatory authority over wetlands. An impact to wetlands would be significant if it would result in the net loss of wetland area or negatively affect a wetland's capacity for groundwater recharge and discharge, flood flow alteration, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, or aquatic and terrestrial diversity and abundance.

4.4.1 Impacts of the Preferred Alternative

No natural wetlands exist near the proposed project area along the New River. A series of man-made wetlands have been constructed on the U.S. side in southwestern Calexico. Under the Preferred Alternative, stormwater best management practices will be implemented to prevent the release of stormwater from the project site. No increased sedimentation into U.S. waters or wetlands would occur. Since no wetlands in the U.S. occur near the proposed project site and no construction or operation activities would potentially impact wetlands, no direct or indirect effects to wetlands would occur and impacts under implementation of the Preferred Alternative would be less than significant.

4.4.2 No Action Alternative

Under the No Action Alternative, new wastewater pipeline would not be constructed. Given that conditions with regard to wetlands would remain unchanged from those described in Section 3.4, no impacts under implementation of the No Action Alternative would occur.

4.5 Water Resources

Determination of the significance of potential impacts to water resources is based on water availability, quality, and use and associated regulations such as the Clean Water Act (CWA). An impact to water resources would be significant if it would:

- Reduce water availability to or interfere with the supply of existing users;
- Create or contribute to overdraft of groundwater basins or exceed safe annual yield of water supply sources; and
- Adversely affect water quality or endanger public health by creating or worsening adverse health hazard conditions.

4.5.1 Impacts of the Preferred Alternative

The drainage area within the Mexicali I project area flows to the New River from Mexico into the U.S. The Preferred Alternative will improve water quality conditions since new collection pipeline will rehabilitate failing pipeline thus eliminating breaks and the potential for human exposure to raw sewage. In addition, during emergency repairs to failing pipeline, raw sewage is directed to the New River until repairs can be completed. The Preferred Alternative will eliminate the need for emergency repairs within the areas of Loma Linda and Esperanza. As a result, implementation of the Preferred Alternative would have a positive direct effect on U.S. waters.

4.5.2 No Action Alternative

Under the No Action Alternative, no new wastewater pipeline would be constructed and residents in the Colonias Loma Linda and Esperanza would continue to use experience pipeline collapses and potential exposure to raw sewage. The water resource impacts to the U.S. would remain unchanged from those described in Section 3.5. No impacts to water resources in the U.S. under implementation of the No Action Alternative would occur.

4.6 Biological Resources

Determination of the significance of potential impacts to biological resources is based on:

- The importance (i.e., legal, commercial, recreation, ecological, or scientific) of the resource;
- The proportion of the resource that would be affected relative to its occurrence in the region;
- The sensitivity of the resource to proposed activities; and
- The duration of ecological ramifications.

Impacts to biological resources are significant if species or habitats of concern as regulated under the *Endangered Species Act* are adversely affected over relatively large areas or if disturbances cause reductions in population size or distribution. Potential physical impacts such as habitat loss, noise, and impacts to surface water were evaluated to assess potential impacts to biological resources.

4.6.1 Impacts of the Preferred Alternative

Under the Preferred Alternative, no construction would occur within the U.S.; therefore there would be no direct impacts to habitat within the U.S. In addition, no viable habitat occurs within the project area of the areas Loma Linda and Esperanza. Improved water quality would occur with the implementation of the Preferred Alternative since pipeline breakage would be

eliminated within the proposed project area. Finally, during emergency repairs, raw sewage is currently discharged to the New River. This would be eliminated after the implementation of the Preferred Alternative.

4.6.2 No Action Alternative

Under the No Action Alternative, new wastewater pipeline would not be constructed and emergency repairs would continue along with temporary discharges of raw sewage to the New River. Water quality impacts to the New River would continue in the No Action Alternative which may affect species and habitat within the New River drainage area.

4.7 Cultural Resources

Cultural resources are subject to review under both federal and state laws and regulations. Section 106 of the National Historic Preservation Act of 1966 empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion on the National Register of Historic Places (NRHP). Once cultural resources have been identified, significance evaluation is the process by which resources are assessed relative to significance criteria for scientific or historic research, for the general public, and for traditional cultural groups. Only cultural resources determined to be significant (i.e., eligible for the NRHP) are protected under the National Historic Preservation Act.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may occur by:

- Physically altering, damaging, or destroying all or part of a resource;
- Altering the characteristics of the surrounding environment that contribute to resource significance;
- Introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; and
- Neglecting the resource to the extent that it is deteriorated or destroyed.

Indirect impacts primarily result from the effects of project-induced population increases and the resultant need to develop new housing areas, utilities services, and other support functions necessary to accommodate population growth. These activities and the subsequent use of the facilities can disturb or destroy cultural resources.

4.7.1 Impacts of the Preferred Alternative

The regulations (36 CFR Part 800) implementing Section 106 of the *National Historic Preservation Act of 1966* (as amended) require identification of all cultural properties within the areas of potential effect that meet the criteria for inclusion in the *National Register of Historic Places* and to afford the Advisory Council on Historic Preservation an opportunity to comment on those actions that affect them. This cultural resources assessment has been conducted to assist with the identification of cultural properties that appear to qualify for listing on the *National*

Register of Historic Places and that may be affected by project alternatives located on the US side of the International Border.

This cultural resources evaluation considers the effects of proposed project facilities and improvements that would be constructed in the U.S. No construction would occur in the U.S. upon implementation of the Preferred Alternative. Further, construction proposed in Mexicali I would not indirectly affect cultural resources in the U.S. through water discharge, vibration, or other cross-border physical impacts. Therefore, cultural resources within the U.S. would not be affected by the Preferred Alternative and potential impacts would be considered less than significant.

4.7.2 No Action Alternative

Under the No Action Alternative new wastewater collection pipeline would not be constructed in the Mexicali I area. No construction would occur in the U.S.; therefore a cultural resources assessment would not be required and no impacts to the cultural resources would occur.

4.8 Socioeconomics

Significance of population and expenditure impacts are assessed in terms of their direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts varies depending on the location of a proposed action.

If potential socioeconomic impacts would result in substantial shifts in population trends, or adversely affect regional spending and earning patterns, they would be significant.

4.8.1 Impacts of the Preferred Alternative

Upon implementation of the Preferred Alternative, new wastewater collection pipeline would be constructed in the Mexicali I. Construction crews for the project would likely be hired from the available pool of workers in Mexicali. No new short-term construction employment or long-term employment would be generated in the U.S. Therefore, no impacts to socioeconomics would occur in the U.S.

4.8.2 No Action Alternative

Under the No Action Alternative new wastewater collection pipeline would not be constructed in the Mexicali I area. Socioeconomic conditions would remain as described in Section 3.8. No impacts would occur.

4.9 Environmental Justice and Protection of Children

The health of the New River is a great concern for public health and safety in the border region. The situation has prompted the California EPA to designate the New River as an Environmental Justice Pilot Project for the California EPA with the goal of developing a children's environmental risk reduction plan.

In order to comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, ethnicity and poverty status within the U.S. in the vicinity of the project have been examined and compared to city, county, state, and national

data to determine if any minority or low-income communities could potentially be disproportionately affected by implementation of the Preferred Alternative or other alternatives.

Similarly, to comply with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, the distribution of children and locations where numbers of children may be proportionally high within the U.S. in the vicinity of the project was determined to ensure that environmental health and safety risks to children are addressed.

4.9.1 Impacts of the Preferred Alternative

Construction of the Preferred Alternative would be entirely within Mexico. No short-term or long-term impacts are anticipated to occur within the U.S.; therefore, children and minority and low-income populations within the U.S. will not experience direct disproportionate impacts related to the Preferred Alternative. The proposed action could result in indirect transboundary benefits to U.S. public health and the border economy as there are frequent crossings between the US and Mexicali, and U.S. visitors would not be exposed to raw sewage from broken sewer lines.

Public health in Mexicali would be positively affected by the proposed alternatives because it would reduce exposure to raw sewage due to spills for pipe breaks and collapses and contamination of potable water supplies and open drains, which are both pertinent health risks. The improvement of sanitary conditions within the Loma Linda and Esperanza vicinity would promote better overall public health conditions in the area. The region's economy could improve because workers are healthier, which could lead to more productivity, and the region could attract more tourism because potential health threats to visitors would be reduced.

4.9.2 No action alternative

Under the No Action Alternative rehabilitations will not be implemented and conditions would remain as described in Section 3.9. No impacts related to Environmental Justice or Protection of Children would occur.

4.10 Geological Resources

Analysis of potential impacts to geological resources includes:

- Identification and description of resources that could potentially be affected;
- Examination of the proposed action and alternatives and the potential effects this action may have on the resource;
- Assessment of the significance of potential impacts; and
- Provision of mitigation measures in the event that potentially significant impacts are identified.

4.10.1 Impacts of the Preferred Alternative

Geologic or seismic impacts are assessed relative to public and human occupancy of structures. Potential impacts may include failure of manufactured slopes (i.e., landslides, shear zones, sloughing), differential settlement due to improper fill or subsidence, and ground rupture, ground shaking, or liquefaction due to improper siting or noncompliance with seismic building

codes. No construction or earth movement would occur in the U.S. upon implementation of the Preferred Alternative. Construction proposed in Mexicali I would not affect soils, geology, seismicity, or topography in the U.S.; therefore, potential impacts under the Preferred Alternative would be less than significant.

No adverse impacts to geology, seismicity, and soils are expected to occur in Mexicali since the project area is located within the urban area which is already affected. The project consist of a rehabilitation of existing pipelines temporary excavating, grading or fill work will occur in the project area during construction and no significant vertical excavation is planned during construction so the potential for direct impact from landslides at the sites is considered nonexistent. Impacts to the geologic environment involve dust generation which is not expected to adversely impact the geologic environment.

4.10.2 No Action Alternative

Under the No Action Alternative new wastewater collection pipeline would not be constructed in the Mexicali I area and geological conditions would remain as described in Section 3.10.

4.11 Land Use and Infrastructure

Significance of potential land use and infrastructure impacts is based on the level of land use sensitivity in areas affected by a proposed action. In general, land use and infrastructure impacts would be significant if they would:

- Be inconsistent or in noncompliance with applicable land use plans or policies;
- Preclude the viability of existing land use;
- Preclude continued use or occupation of an area;
- Be incompatible with adjacent or vicinity land use to the extent that public health or safety is threatened; and
- Result in the inability of existing infrastructure to function effectively for its designed purpose.

4.11.1 Impacts of the Preferred Alternative

Implementation of the Preferred Alternative would not require any construction in the U.S.; and long-term operation of the system would not be noticeable in the U.S. Under this alternative, no land use changes would occur in the U.S. As such, implementation of the Preferred Alternative would be independent of existing land use plans and policies in Imperial County; therefore, impacts to land use associated with this alternative would be less than significant.

4.11.2 No Action Alternative

The No Action Alternative would provide no improvements to the existing wastewater collection pipeline in the areas Loma Linda and Esperanza. There would therefore be no land use changes in the U.S. or Mexicali. Impacts in the U.S., however, would be less than significant.

4.12 Cumulative Impacts

Cumulative impacts on environmental resources result from incremental impacts of the Preferred Alternative when combined with other past, present and reasonably foreseeable future projects in an affected area.

Cumulative impacts can result from minor but collectively substantial actions undertaken over a period of time by various agencies (Federal, state or local) or persons. In accordance with NEPA, cumulative impacts resulting from projects that are proposed, under construction, recently completed or anticipated to be implemented in the near future are discussed in the section.

During construction, adverse regional air emissions would increase negligibly as a result of the project. They would be of short-term duration. Any cumulative net increase in air emissions would not likely result in the City of Calexico being reclassified to nonattainment status for any of the criteria air pollutants. With the implementation of the Preferred Alternative there would be improved water quality conditions within the New River since raw sewage discharges during emergency collection line repairs would be eliminated within the Colonias of Loma Linda and Esperanza. Long-term cumulative impacts associated with the Preferred Alternative would be beneficial to water resources and public health and safety, by ensuring improved water quality.

4.13 Unavoidable Adverse Impacts

Implementation of Alternatives 1 would result in temporary, minor adverse environmental impacts such as fugitive dust emissions, vehicle emissions, noise, traffic disruption, and soil disturbance.

4.14 Relationship of Short-Term and Long-Term Productivity

In the short-term, implementation of Alternatives 1 would result in temporary, adverse impacts such as fugitive dust emissions, vehicle emissions, noise, traffic disruption, and soil erosion. Long-term effects of Alternative 1 include improved wastewater collection in the project area resulting in protection of water resources and improved public health and quality of life.

4.15 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources for the proposed project include the project area where the wastewater collection pipeline is to be constructed, as well as grants and loan funds used to construct the project. Since the pipeline construction will occur within the already disturbed project area, no commitment of natural resources is needed.

4.16 Conclusion

This EA has been prepared in accordance with NEPA requirements. The EA reviews potential impacts of proposed wastewater collection pipeline within the communities of Loma Linda and Esperanza. The EA concludes that there are no significant adverse impacts on the environment resulting from the implementation of Alternative 1 and recommends Alternative 1 based upon the criteria discussed in Section 3.

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Appendix A- REGULATORY DRIVERS AND GUIDANCE

The purpose of this appendix is to summarize international agreements and U.S. and Mexican environmental protection regulations applicable to this EA.

International Agreements

The BECC BEIF Environmental Assessment Guidelines identify and describe the following five major bilateral agreements between Mexico and the U.S. related to environmental protection:

- The 1889 International Boundary Convention
- The Water Treaty of 1944
- The 1983 La Paz Agreement (or Border Environmental Agreement)
- The 1992 Integrated Border Environmental Plan (IBEP)
- The 1994 North American Free Trade Agreement (NAFTA)

“The 1889 International Boundary Convention established the International Boundary Commission (IBC). The Water Treaty of 1944 replaced the IBC with the International Boundary and Water Commission (IBWC) and granted the U.S. Section of the IBWC enhanced authority to address water quality, conservation, and use issues within the U.S. All international border and water treaties with respect to Mexico are coordinated through the IBWC. “

“The IBWC was created by the governments of the U.S. and Mexico to apply the provisions of various border and water treaties and settle differences arising from such applications through a joint international commission. IBWC coordinates the exchange of information between the U.S. and Mexico for all program activities that involve watersheds or aquifers crossing into Mexico. The IBWC jurisdiction extends along the U.S./Mexico International Border, and inland into both countries where international border and water projects may exist. The IBWC has encouraged and coordinated the establishment of cooperative relationships with federal, state, and local agencies, both in the U.S. and Mexico, in carrying out its border projects and activities.”

The 1944 Treaty also specifies the way in which water rights of the Rio Grande, from Fort Quitman in Texas to the Gulf of Mexico, are allotted. In summary, the Treaty states that all of the water reaching the Rio Grande from the San Juan and Alamo Rivers belongs to Mexico, as well as two thirds of the flow from the Conchos, San Diego, San Rodrigo, Escondido, and Salado rivers and Las Vacas Arroyo. Flows not-allotted by the treaty are equally owned by both countries.

The “Agreement for the Protection and Improvement of the Environment in the Border Area”, known as La Paz Agreement, was signed in 1983. The main objective of the Agreement is to protect, improve, and conserve the environment of the border area. The La Paz Agreement defines the border region as the area lying 100 km (62 miles) to the north and south of the U.S./Mexico International Border. In 1992, the IBEP was released, and building on this, the Border XXI Program increased the scope of concern to include environmental health and natural resources issues.

“As part of NAFTA, a bilateral agreement was signed to address the deficiencies in water and wastewater infrastructure in the border area. A second environmental agreement negotiated to

augment NAFTA is the 1994 U.S./Mexico Agreement Concerning the Establishment of a BECC and a NADB (BECC-NADB Agreement). The BECC-NADB Agreement targets certain environmental problems in the border region to remedy international border environmental or health problems. The BEIF was created by NADB and EPA to make environmental infrastructure projects affordable for communities throughout the U.S./Mexico border region by combining grant funds with loans or guaranties for projects that would otherwise be financially unfeasible.”

U.S. National Environmental Policy Act of 1969

NEPA was passed in 1969 “to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.” NEPA requires all federal agencies to prepare Environmental Information Documents (EIDs), EAs and/or Environmental Impact Statements (EISs) to assess environmental impacts from project alternatives.

The purpose of NEPA is “to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.”

According to NEPA, it is the continuing responsibility of the federal government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate federal plans, functions, programs, and resources.

NEPA, as amended in 1970, requires federal agencies to: (a) utilize a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment; (b) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by Title II of this Act, which will ensure that presently un-quantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations; (c) include in every recommendation a detailed statement on the environmental impact of the Proposed Action; any adverse environmental effects which cannot be avoided should the proposal be implemented; alternatives to the Proposed Action; the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and; any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented.

U.S. Air Regulations

The Clean Air Act (CAA) was enacted in 1970 to address air pollution at the federal level. The CAA requires the EPA administration to set national ambient air quality standards and emission standards. Furthermore, the act established auto emission standards. Prior to the passage of the CAA, regulations for air quality control were defined and enforced at the state level. The CAA still allows states to have more stringent standards than those required by the federal government.

The CAA was amended in 1977. The amendment relaxed auto emission standards, and established provisions for the deterioration of areas. The CAA was further amended in 1990. The 1990 Clean Air Act provides for interstate commissions on air pollution control, which are to develop regional strategies for cleaning up air pollution. The 1990 Clean Air Act includes other provisions to reduce interstate air pollution. The CAA also acknowledges that air pollution

moves across national borders, and the law addresses pollution that originates in the U.S. and reaches Canada and Mexico.

The 1990 CAA Amendment also created the framework for the creation of a permit program for large point sources of air contaminants. The CAA requires federal actions to conform to any state implementation plan approved or promulgated under Section 110 of the Act. For EPA actions, the applicable conformity requirements specified in 40 CFR Part 51, Subpart W; 40 CFR Part 93, Subpart B; and the applicable state implementation plan must be met. Under the Federal Rule on General Conformity, 40 CFR Part 93, a conformity determination is required only when emissions occur in a non-attainment area. Much of the work necessary to carry out the Clean Air Act is delegated to the states.

Mexican Air Regulations

Two air quality regulations and two noise regulations relevant to this EA have been incorporated into the *Normas Oficiales Mexicanas*, or Mexican Official Regulations:

- *Límites Máximos Permisibles de Emisiones para Vehículos con Gasolina*, or Maximum Permissible Emission Limits for Vehicles Using Gasoline (NOM-041-SEMARNAT-1999)
- *Límites Máximos Permisibles de Emisiones para Vehículos con Diesel*, or Maximum Permissible Emission Limits for Vehicles Using Diesel (NOM-045-SEMARNAT-1996)
- *Límites Máximos Permisibles de Emisión de Ruido de Vehículos Automotores*, or Maximum Permissible Emission Limits for Noise from Motor Vehicles (NOM-080-SEMARNAT-1994)
- *Emisiones de Ruido de Fuentes Fijas*, or Noise Emissions from Fixed Sources (NOM-081-SEMARNAT-1994)

U.S. Water Quality Regulations

The Clean Water Act (CWA) established the basic structure for regulating discharges of pollutants into the waters of the U.S. It gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA also continued requirements to set water quality standards for contaminants of concern in surface waters. The Act made it unlawful for any person to discharge a pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. It also funded the construction of sewage treatment plants under the construction grants program and recognized the need for planning to address the critical problems posed by non-point source pollution.

Mexican Water Quality Regulations

There are five water quality regulations relevant to this EA in the *Normas Oficiales Mexicanas*, or Mexican Official Regulations:

- *Limites Máximos Permisibles de Contaminantes en las Descargas de Aguas Residuales en Aguas y Bienes Nacionales*, or Maximum Permissible Limits of Contaminants in Wastewater Discharges into National Waters and Natural Resources (NOM-001-SEMARNAT-1996)
- *Límites Máximos Permisibles de Contaminantes Para las Aguas Residuales Tratadas que se Reusen en Servicios al Público*, or Maximum Permissible Limits of Contaminants for Treated Wastewaters that are Reused in Services to the Public (NOM-003-SEMARNAT-1997)
- *Límites Permisibles de Calidad y Tratamiento a que Debe Someterse el Agua Para su Potabilización*, or Permissible Quality and Treatment Limits for Potable Water (NOM-127-SSA1-1994)

- *Vigilancia y Evaluación del Control de Calidad del Agua Para Uso y Consumo Humano Distribuida por Sistemas de Abastecimiento Público*, or Monitoring and Evaluation of Quality Control of Water for Human Use and Consumption through Public Supply Systems (NOM-179-SSA1-1998)
- *Requisitos Sanitarios que Deben Cumplir los Sistemas de Abastecimiento de Agua para Uso y Consumo Humano Públicos y Privados*, or Sanitary Requirements to Which Public and Private Water Supply Systems for Human Use and Consumption Must Comply (NOM-012-SSA1-1993)

U.S. Biological Resource Regulations

The Endangered Species Act (ESA), 16 USC 1536 *et seq.*, protects threatened and endangered plants and animals and their habitats. The U.S. Fish and Wildlife Service (USFWS) of the Department of the Interior implement the ESA at a national level. California Department of Fish and Game (DFG) implements the California ESA. DFG maintains a list of special status species within the state.

The law prohibits any action, administrative or real, that results in a "taking" of a listed species, or adversely affects habitat. Likewise, import, export, interstate, and foreign commerce of listed species are all prohibited.

In the context of this study, the ESA must be observed for any potential impacts to terrestrial habitat in the U.S. resulting from construction activities, as well as impacts to aquatic habitat resulting from changes in water quality.

Mexican Biological Resource Regulations

The *Norma Oficial Mexicana*, or Mexican Official Regulation having to do with protection of species is NOM-059-SEMARNAT-2001. The regulation includes a list of native Mexican species, and their status as either endangered, threatened, afforded special protection, or likely to be extinct. Of the 569 amphibians, birds, fungi, invertebrates, mammals, fish, plants, and reptiles listed, 104 are endangered, 164 are threatened, 10 are considered probably extinct, and the rest are afforded special protection.

Federal Cross-Cutting Laws and Regulations

This EA addresses the following laws within its scope as well.

National Natural Landmarks - The Secretary of the Interior is authorized to designate areas as National Natural Landmarks for listing on the National Registry of Natural Landmarks pursuant to the Historic Act of 1935, 16 U.S. Code (USC) 461 *et seq.* In conducting the environmental review of the Proposed Action, EPA is required to consider the existence and location of natural landmarks, using information provided by the National Park Service (NPS) pursuant to 36 CFR 62.6(d). The Tijuana River Estuary is a National Natural Landmark.

Cultural Resources Data - The Archeological and Historic Preservation Act (AHPA) of 1974, 16 USC 469 *et seq.* provides for the preservation of cultural resources if an EPA activity may cause irreparable loss or destruction of significant scientific, prehistoric, or archeological data. In accordance with the AHPA, the responsible official or the Secretary of the Interior is authorized to undertake data recovery and preservation activities.

Cultural Resources - The *National Historic Preservation Act* (NHPA), as amended, 16 SC. 470, directs federal agencies to integrate historic preservation into all activities which either directly or indirectly involving land use decisions. The NHPA is administered by the NPS, the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers

(SHPOs), and each federal agency. Implementing regulations include 36 CFR Part 800: *Regulations of the Advisory Council on Historic Preservation Governing the NHPA Section 106 Review Process*. Section 106 of the NHPA requires federal agencies to take into consideration the impact that an action may have on historic properties which are included on, or are eligible for inclusion on, the National Register of Historic Places. The Section 106 review process is usually carried out as part of a formal consultation with the SHPO, the ACHP, and other parties, such as Indian tribes, that have knowledge of, or a particular interest in, historic resources in the area of the undertaking.

Wetlands Protection - EO 11990, "Protection of Wetlands" of 1977, requires federal agencies conducting certain activities to avoid, to the extent possible, adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands, if a practicable alternative exists. Discharge of dredge or fill material into wetlands and other waters of the U.S. are also regulated under Section 404 of the Clean Water Act.

Floodplain Management - EO 11988, "Floodplain Management" of 1977, requires federal agencies to evaluate the potential effects of actions they may take in a floodplain to avoid, to the extent possible, any adverse effects associated with the direct and indirect development of a floodplain.

Coastal Zone Management Act - The Coastal Zone Management Act, 16 USC 1451 *et seq.*, requires that federal agencies in coastal areas be consistent with approved State Coastal Zone Management Programs, to the maximum extent possible. If an EPA action may affect a coastal zone area, the responsible official is required to assess the impact of the action on the coastal zone.

Fish and Wildlife Protection - The Fish and Wildlife Coordination Act, 16 USC 661 *et seq.*, requires federal agencies involved in actions that will result in the control or structural modification of any natural stream or body of water for any purpose, to take action to protect the fish and wildlife resources that may be affected by the action.

Wilderness Protection - The Wilderness Act, 16 USC 1131 *et seq.*, establishes a system of National Wilderness Areas. The act establishes a policy for protecting this system by generally prohibiting motorized equipment, structures, installations, roads, commercial enterprises, aircraft landings, and mechanical transport. Otay Mountain Wilderness, designated in 1999, is the nearest wilderness site to the study area.

Environmental Justice - EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and the accompanying presidential memorandum, advise federal agencies to identify and address, whenever feasible, disproportionately high and adverse human health or environmental effects on minority communities and/or low-income communities.