CHAPTER 1.0

INTRODUCTION

CHAPTER 1.0 INTRODUCTION

1.1 SUMMARY OF THE PROPOSED ACTION AND EIS PROCESS

Pursuant to the National Environmental Policy Act (NEPA), this Environmental Impact Statement/Tribal Environmental Impact Report (EIS/TEIR) has been prepared by the Bureau of Indian Affairs (BIA) to assess the environmental impacts of proposed Federal actions intended to improve the long-term economic vitality and self-governance of the Los Coyotes Band of Cahuilla and Cupeño Indians (Tribe) by taking approximately 23.1± acres in the City Barstow, California, into Federal trust status for the Tribe for the development of a Class III gaming facility and hotel (Proposed Action). Approval of the Tribe's gaming ~~development and~~ management contract by the National Indian Gaming Commission (NIGC), a federal agency, may also be required under the Proposed Action.

Pursuant to 25 CFR Part 151, the BIA, as an agency under the authority of the Secretary of the Interior, is charged with reviewing and approving tribal applications to take land into Federal trust status. Since the Tribe is seeking to acquire off-reservation land in trust for gaming purposes, compliance with Section 20 of the Indian Gaming Regulatory Act (IGRA) is being considered along with the BIA Part 151 fee-to trust application. In this case, acquisition of approximately 23.1 acres in trust for gaming would require that the Secretary of the Interior make a "two-part determination," under Section 20(b)(1)(A), that gaming on the newly acquired lands would be in the best interest of the Tribe and not detrimental to the surrounding community (25 U.S.C. § 2719(b)(1)(A)). A Secretarial two-part determination may only be made after consultation with the Tribe and appropriate state and local officials, including officials of other nearby tribes. In addition, California's Governor must concur in the determination before gaming could occur on the Barstow property.

The NIGC is charged with regulating gaming on "Indian lands" as mandated by IGRA. As part of its regulatory authority under IGRA, the NIGC reviews and approves all gaming development and management contracts between Native American tribal governments and outside management companies.

For the purpose of this EIS/TEIR, the BIA serves as the Lead Agency for compliance with NEPA, with the NIGC serving as a Cooperating Agency. The BIA also invited several federal, state, and local agencies to act as cooperating agencies for purposes of NEPA. These agencies included the United States Environmental Protection Agency (USEPA) Region 9, the California Department of Transportation (Caltrans), the County of San Bernardino, and the City of Barstow (See **Appendix A** of the Draft EIS/TEIR). The BIA also has asked the Tribe, as the applicant, to participate as a cooperating agency, because the Tribe has special expertise and will have jurisdiction with respect to a number of environmental impacts, and because the environmental impacts would affect the Tribe and/or its reservation, pursuant to 40 CFR 1508.5. Cooperating agencies for the EIS are the Tribe, the USEPA, the NIGC, and the City of Barstow. San Bernardino County and Caltrans declined the offer to be cooperating agencies.

This EIS/TEIR has been completed in accordance with the applicable requirements of NEPA and its implementing regulations and guidance. NEPA requires the BIA and NIGC to review and analyze the environmental impacts associated with the Proposed Action. This document provides a detailed description of the development alternatives and an analysis of the potential consequences associated with the developments that may result from the Proposed Action. The No Action alternative is also addressed as required under NEPA. This document includes a discussion of alternatives, avoidance of effects, and mitigation measures.

1.1.1 TEIR PROCESS

The Tribe expects to negotiate a Class III gaming compact with the State of California. The gaming compact will specify~~mandate~~ the location ~~within the Tribe's reservation~~ at which the Tribe may operate a Class III gaming facility and will set forth an off-reservation environmental review process. Based on the requirements of other California tribal gaming compacts, it is expected that Section 11 of the Tribal/State Compact will require the Tribe to prepare a TEIR assessing the off-reservation environmental impacts of the proposed hotel and casino complex. To reduce paperwork and eliminate redundancy, the EIS and the TEIR have been prepared in coordination, resulting in a joint EIS/TEIR. The Tribe serves as the Lead Agency for compliance with TEIR requirements.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to help provide for the economic development of the Tribe and stability and self-sufficiency of the Tribal government, resulting in economic, social, and other benefits for the Tribe. Implementation of the Proposed Action would assist the Tribe in meeting the following objectives:

- Improve the socioeconomic status of the Tribe by providing a reliable, significant revenue source that would be used to: strengthen the Tribal government; fund a variety of social, housing, governmental, administrative, educational, health and welfare services to improve the quality of life of Tribal members; and provide capital for other economic development and investment opportunities.
- Provide employment opportunities for the Tribal and non-tribal community, including the creation of on-reservation job opportunities.
- Make donations to charitable organizations and governmental operations, including local educational institutions.
- Fund local governmental agencies, programs, and services.
- Establish economic self-sufficiency and achieve Tribal self-determination.

Economic development opportunities for the Tribe have been limited due to a lack of funds for project development and operation, as well as the fact that the Tribe's existing reservation lands are remote, composed almost entirely of steep, rugged terrain, environmentally sensitive, and difficult to access, being surrounded by various state and federal forest, park and public domain lands. As a consequence,

the reservation has limited infrastructure and opportunities for economic development. Currently, ~~and~~ the Tribe has no reliable, significant sustained revenue stream that is sufficient ~~could be used~~ to fund programs and provide assistance to Tribal members. Section 5 of the Indian Reorganization Act (IRA) contains the BIA's general authority to acquire land in trust for Indians. Case law and the IRA's legislative history make clear that Congress intended the IRA to provide BIA with a vehicle to promote tribal economic development and self-sufficiency, in response to the destructive effects of the federal government's prior Indian allotment policy. Congress believed that additional land was essential for the economic advancement and self-support of Indian communities. The overlapping purposes of the IRA and the IGRA confirm that Congress intended the BIA to foster tribal self-government and self-determination, through acquisition of land in trust for gaming.

The Tribe's need for an economic base represents one of the primary purposes behind IGRA. IGRA states that Congress finds "a principal goal of Federal Indian policy is to promote tribal economic development, tribal self sufficiency, and strong tribal government" (25 U.S.C. § 2701). IGRA also states that one of the purposes of the act is "to provide a statutory basis for the operation of gaming by Indian tribes as a means of promoting tribal economic development, self-sufficiency, and strong tribal governments" (25 U.S.C. § 2702).

To ensure that revenues raised from gaming are used to "promote tribal economic development, tribal self sufficiency, and strong tribal government," IGRA (25 U.S.C. § 2710[b][2][A]) limits the use of net gaming revenues to the following:

- Funding tribal government operations or programs.
- Providing for the general welfare of the Indian tribe and its members.
- Promoting tribal economic development.
- Making donations to charitable organizations.
- Funding operations of local government agencies.

The Proposed Action would provide the Tribe with a long-term, viable, and sustainable revenue base. Revenues from the operation of the casino and hotel would be used (at a minimum) for the following purposes:

- Funding governmental programs and services, including housing, education and career training, infrastructure expansion and improvement, environmental, cultural, health and welfare, and safety programs and services.
- Hiring additional tribal government staff, upgrading equipment and facilities, and generally improving tribal governmental operations.
- Decreasing the Tribe's and Tribal member's dependence on federal and state grants and assistance programs.
- Making donations to charitable organizations and governmental operations, including local educational institutions.
- Funding local governmental agencies, programs, and services.

- Providing revenue sharing and trust fund payments.
- Providing capital for other economic development and investment opportunities and allowing the Tribe to diversify its holdings over time, so that it is no longer dependent upon the federal or state government or even upon gaming to survive and prosper.

Each of these purposes is consistent with the allowable uses for gaming revenues set out in IGRA. The hotel and casino complex would also provide employment opportunities for Tribal members, a large number of whom live within commuting distance of Barstow, as well as local non-tribal residents. Operation of the casino, hotel, and related facilities would require the purchase of goods and services, increasing opportunities for local businesses and stimulating the local economy.

1.3 OVERVIEW OF THE ENVIRONMENTAL REVIEW PROCESS

As mentioned in **Section 1.1**, above, this document has been prepared to meet NEPA, Tribal, and state compact environmental review requirements. A brief overview of both processes is provided below.

1.3.1 NATIONAL ENVIRONMENTAL POLICY ACT

NEPA generally requires that an EIS be prepared for major federal actions that may significantly affect the quality of the human environment (42 U.S.C. § 4332). This document has been completed in accordance with the requirements set forth in NEPA (42 U.S.C. § 4321 *et seq.*); the Department of the Interior's Regulations for Implementing NEPA (43 CFR Part 46), the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 C.F.R. Parts 1500-1508); and the BIA NEPA Handbook (59 IAM 3).

This EIS/TEIR has been prepared to analyze and document the environmental consequences associated with the approval of the fee-to-trust acquisition and resulting development of a hotel and casino complex. Additionally, the EIS/TEIR analyzes a reasonable range of alternatives, including four development alternatives and a no-action alternative. This document also includes a discussion of avoidance and mitigation measures to reduce potential environmental effects.

Notice of Intent and Scoping

The first formal step in the preparation of an EIS is publication of a Notice of Intent (NOI) to prepare an EIS. The purpose of an NOI is to inform the public that the lead agency intends to prepare and consider an EIS for a proposed action. The NOI also includes a description of the proposed action and possible alternatives, a description of the proposed scoping process, including whether, when, and where any scoping meeting will be held, and the name and address of the lead agency contact for the public (40 C.F.R. § 1508.22).

The CEQ regulations for implementing NEPA require a process, referred to as "scoping," for determining the range of issues to be addressed during the environmental review of a proposed action (40 C.F.R. § 1501.7). The scoping process entails a determination of issues by soliciting comments from agencies, organizations, and individuals.

The BIA published the original NOI in the *Federal Register* (71 FR 20126) on April 19, 2006, with the initial public scoping comment period beginning on April 19, 2006 and ending on May 19, 2006 (**Appendix B** of the Draft EIS/TEIR). The NOI was published in the *Barstow Desert Dispatch* on April 20, 2006, and in the *Victorville Daily Press* on April 23, 2006.

The April 19, 2006, NOI served to announce the public scoping meeting, which was held by the BIA on May 4, 2006, at the Barstow Community College Gymnasium, 2700 Barstow Road, Barstow, California. The scoping meeting provided a forum for the public to personally address representatives of the BIA regarding the scope of the EIS and to identify issues of concern.

In September 2006, the BIA published a Scoping Report, which summarized the comments received during the scoping period and outlined the expected scope of the EIS. To the extent required by NEPA, this EIS/TEIR has incorporated the issues and concerns identified within the Scoping Report.
The BIA did not approve the original fee-to-trust application, and on May 19, 2008, (73 CFR 28841) published a Notice of Cancellation of work. Subsequently, on June 6, 2008, the BIA published a notice advising the public that the BIA, as lead agency, with the National Indian Gaming Commission (NIGC), City of Barstow and the Tribe as cooperating agencies, intended to gather information to prepare an EIS for the Tribe's renewed application for a proposed fee-to-trust transfer and casino and hotel project in Barstow, California. (73 CFR 32354) After the Tribe resubmitted its application, the June 6, 2008, notice for the renewed application effectively resumed BIA's work on the EIS, such that public scoping for the issues and alternatives to be analyzed in the EIS had already been done. Therefore, no further public scoping meetings were necessary.

A Notice of Correction (NOC) was published in the *Federal Register* on March 27, 2009 to correct several errors in the BIA's June 6, 2008, NOI. The revised notice provided the public an additional 30-day comment period to submit comments on the scope of the EIS and to identify issues of concern. A republication and correction of the NOC was published in the Federal Register on April 10, 2009 to correct an error regarding the date when the comment period ended. The revised notice provided the public with the correct date on which the 30-day comment period ended.

Draft EIS

Th~~is~~e Draft EIS (DEIS) was~~ill be~~ distributed to the public as well as federal, tribal, state, and local agencies and other interested parties for a 75-day review and comment period. The BIA~~ will~~ published a Notice of Availability (NOA) on July 1, 2011 that provide~~s~~d the time and location of public hearing(s) on the DEIS. Responses ~~will~~are~~ be~~ provided for all substantive comments received during the comment period, including those submitted or recorded at public hearing(s) in Volume I of this Final EIS.

Final EIS

Thi~~s~~e Final Environmental Impact Statement (Final EIS)~~ will~~ responds to all relevant issues and concerns identified during the Draft EIS public comment period. The BIA and the USEPA will publish an NOA for the Final EIS; the NOA initiates a 30-day waiting period, during which the BIA must consider impacts analyzed in the Final EIS and any further comments prior to making a decision on the Proposed Action.

Record of Decision

The BIA and the NIGC will consider any comments received within the 30-day waiting period before issuing their respective Record of Decisions (RODs) on the Final EIS.

1.3.2 TRIBAL ENVIRONMENTAL IMPACT REPORT

This ~~Draft~~ Final TEIR was prepared pursuant to the Tribe's Environmental Ordinance and anticipated requirements of the Tribal-State Gaming Compact to be negotiated between the Tribe and the State of California. The evaluation of environmental impacts checklist used in this TEIR is included as **Appendix C** of the Draft EIS/TEIR.

Notice of Preparation

A Notice of Preparation (NOP) of a TEIR was submitted to the State Clearinghouse on April 25, 2006, initiating a comment period that ended May 25, 2006 (**Appendix B** of the Draft EIS/TEIR). The NOP was circulated to local, state, and federal agencies, and to other interested parties to solicit comments on the Proposed Project and suggestions for issues to be evaluated in the TEIR. Concerns raised in response to the NOP, which were summarized in a Scoping Report, were considered during preparation of the Draft TEIR.

Draft TEIR

The~~is~~ Draft TEIR was~~ill~~ ~~be~~ sent to local, state, and federal agencies and to interested organizations and individuals who might have ~~may~~ wished to review and comment on the report. Publication of the~~is~~ Draft TEIR mark~~s~~ed the beginning of the~~a~~ 60-day public review period.

Final TEIR

This~~e~~ Final TEIR will be reviewed to determine if the environmental review process has been carried out consistent with the requirements of the Tribal-State Gaming Compact. The Tribe will be responsible for certifying the Final TEIR in accordance with its Environmental Ordinance.

1.4 REGULATORY PERMITS AND APPROVALS THAT MAY BE REQUIRED

It is anticipated that implementation of the Proposed Action would require Tribal, federal, and state permits and approvals. **Table 1-1** identifies each responsible agency and the potential permit or approval required.

TABLE 1-1
POTENTIAL PERMITS AND APPROVALS REQUIRED

Agency	Permit or Approval	Alternative	Applicant
Los Coyotes Band of Cahuilla and Cupeño Indians	Compliance with Tribal/State Compact and Tribal Environmental Ordinance.	A, B, C	N/A
National Indian Gaming Commission	Approval of tribal gaming ordinances	A, B, C	Los Coyotes Band of Cahuilla and Cupeño Indians
National Indian Gaming Commission	Approval of management contract and related collateral agreements	A, B, C	Los Coyotes Band of Cahuilla and Cupeño Indians
National Indian Gaming Commission	Indian lands determination	A, B	Los Coyotes Band of Cahuilla and Cupeño Indians
Secretary of the Interior – Bureau of Indian Affairs	Fee-to-trust transfer	A, B	Los Coyotes Band of Cahuilla and Cupeño Indians
Secretary of the Interior	Two part determination to allow gaming on tribal lands, acquired after 1988.	A, B	Los Coyotes Band of Cahuilla and Cupeño Indians
U.S. Army Corps of Engineers	Approval of permit(s) for the filling of jurisdictional wetlands/waters (if applicable), as required by the Clean Water Act	C, D	Los Coyotes Band of Cahuilla and Cupeño Indians
U.S. Environmental Protection Agency	Water quality certification (or waiver) as required by the Clean Water Act	C, D	Los Coyotes Band of Cahuilla and Cupeño Indians
U.S. Environmental Protection Agency	Issuance of National Pollutant Discharge Elimination System (NPDES) General Permit for stormwater discharges from construction activities as required by the Clean Water Act	A, B, C, D	Los Coyotes Band of Cahuilla and Cupeño Indians
U.S. Fish and Wildlife Service	Section 7 Consultation under the Federal Endangered Species Act if endangered species may be affected	A, B, C, D	Bureau of Indian Affairs
California State Historic Preservation Office	Consultation under Section106 of the National Historic Preservation Act	A, B, C, D	Bureau of Indian Affairs
City of Barstow	Approval of encroachment permit for project access on Lenwood Road.	A, B	Los Coyotes Band of Cahuilla and Cupeño Indians
Source: AES, 2010.			

CHAPTER 2.0

ALTERNATIVES

CHAPTER 2.0 ALTERNATIVES

2.1 INTRODUCTION

This section describes the alternatives analyzed within this Environmental Impact Statement/Tribal Environmental Impact Report (EIS/TEIR). These alternatives include four development alternatives and a no action alternative. Consistent with Council on Environmental Quality (CEQ) Regulations (40 CFR § 1502.14), this section includes a detailed discussion and comparison of the alternatives analyzed in this EIS/TEIR. A reasonable range of alternatives has been selected based on consideration of the purpose and need, the recommendations of commenters during the scoping process, and opportunities for potentially reducing environmental effects.

2.2 PROJECT ALTERNATIVES

2.2.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

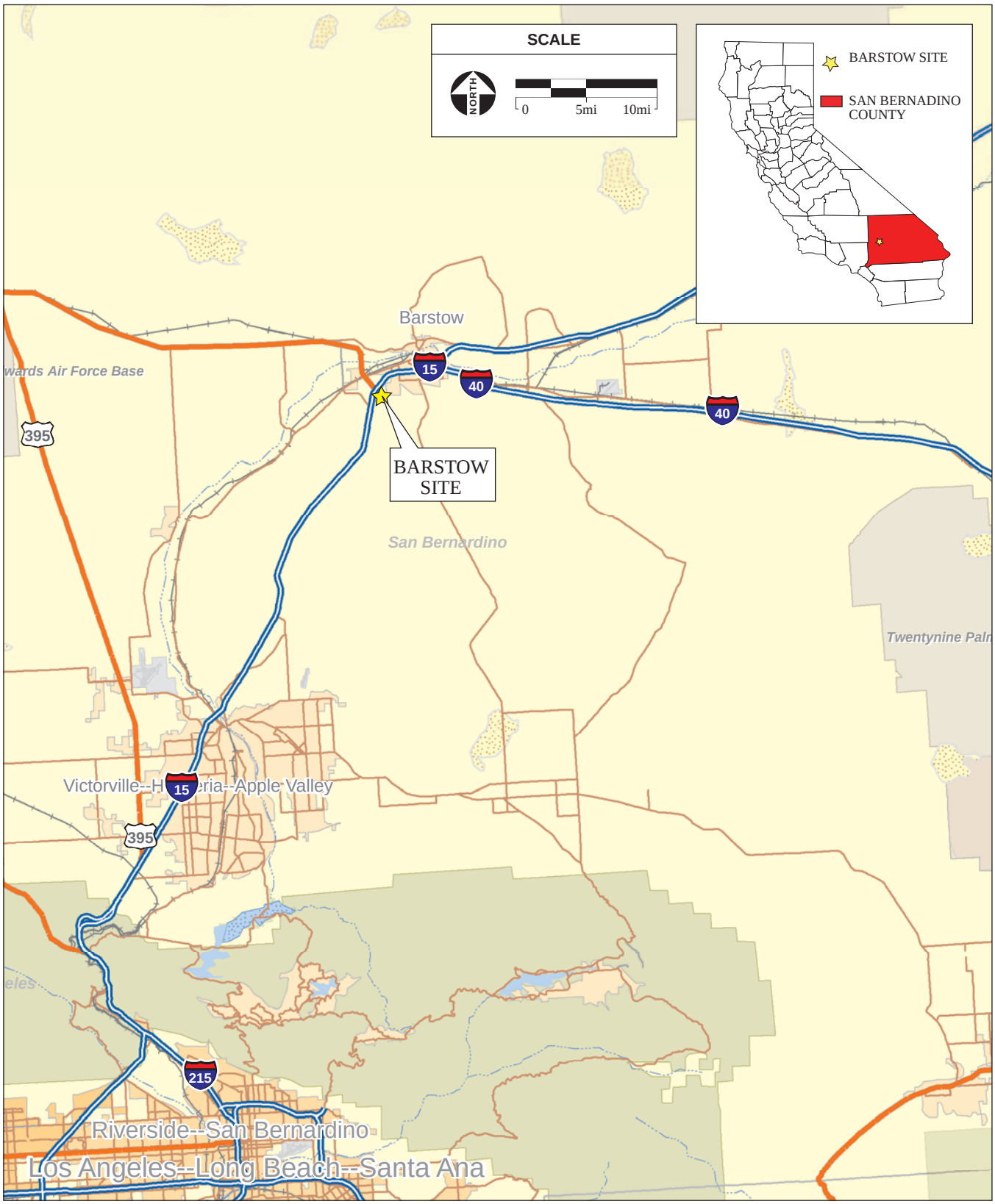
Alternative A consists of the following development components: (1) placement of three assessor's parcels in the City of Barstow (City) totaling approximately 23.1 acres into federal trust status on behalf of the Tribe; (2) issuance of a Two-Part Determination relevant to the fee-to-trust application; (3) approval of management contract and related collateral agreements; and (4) development of a casino and hotel with related amenities on the project site.

Barstow Site

The approximately 23.1-acre project site is located within the incorporated boundaries of the City of Barstow, San Bernardino County, California, just east of Interstate 15 (**Figure 2-1** and **Figure 2-2**). State Highways 58 and 247 and Interstate 40 are located nearby. The site is bordered on the north by vacant land located south of Mercantile Way; on the west by Lenwood Road and commercial/light industrial development; on the south by vacant land; and on the east by Stoddard Valley Off-Highway Vehicle area, under the jurisdiction of the Bureau of Land Management. The parcels are located within Section 27, Township 9N, Range 2W, San Bernardino Base Meridian (SBM), as depicted on the Barstow, U.S. Geological Survey (USGS) topographic quadrangle. The project site consists of the following assessor's parcel numbers (APNs) 428-171-66, 428-171-67, and 428-171-68. **Figure 2-3** provides an aerial photo of the project site and parcel boundaries.

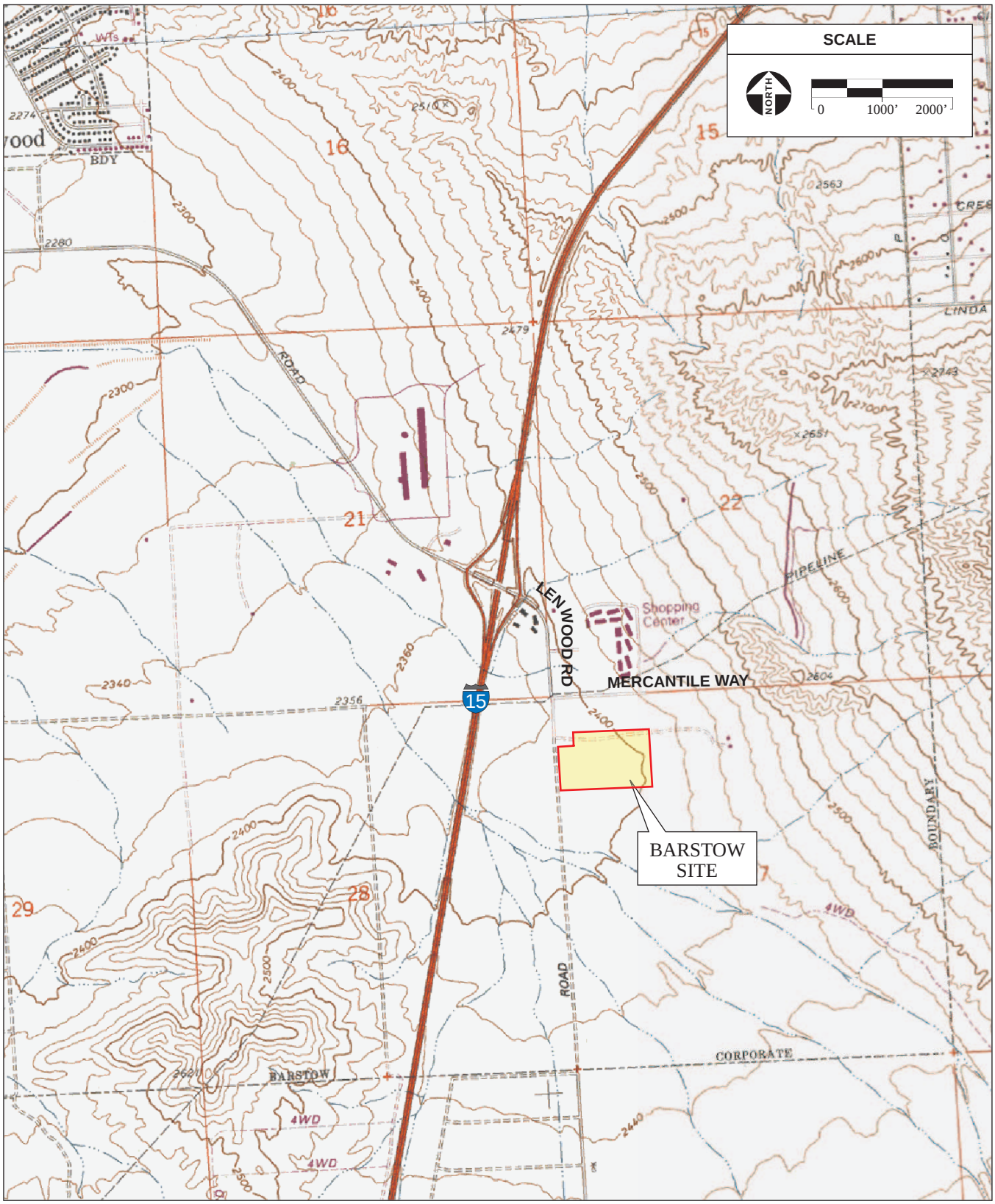
Land Trust Action

The Bureau of Indian Affairs (BIA) will make its determination regarding the fee-to-trust acquisition in accordance with the procedures set forth in 25 CFR Part 151. The Tribe's fee-to-trust application provides detailed information on the land being taken into trust. The regulations in 25 CFR Part 151 implement Section 5 of the Indian Reorganization Act (IRA), codified at 25 U.S.C. § 465. Section 5 of the IRA is the general statute that provides the Secretary of the Interior with authority to acquire lands in trust status for tribes and individual Indians. Since the Tribe is seeking to acquire off-reservation land in



SOURCE: ESRI Data, 2006; AES, 2011

Figure 2-1
Regional Location Map – Barstow Site



SOURCE: "Barstow, CA" USGS 7.5 Minute Topographic Quadrangle, Section 27, T9N, R2W, San Bernadino Baseline & Meridian; AES, 2011

Figure 2-2

Site and Vicinity Map – Barstow Site

SOURCE: DigitalGlobe Aerial Photograph, 3/1/2008; AES, 2011

Figure 2-3
Aerial Site Map Barstow Site

trust for gaming purposes, compliance with Section 20 of the Indian Gaming Regulatory Act (IGRA) is being considered along with the BIA Part 151 fee-to trust application.

Two-Part Secretarial Determination

IGRA allows gaming on tribal lands acquired after October 17, 1988, the date of its enactment, only if certain conditions enumerated in Section 20 are satisfied. In this case, acquisition of approximately 23.1 acres in trust for gaming would require that the Secretary of the Interior make a "two-part determination," under Section 20(b)(1)(A), that gaming on the newly acquired lands would be in the best interest of the Tribe and not detrimental to the surrounding community (25 U.S.C. § 2719(b)(1)(A)). A Secretarial two-part determination may only be made after consultation with the Tribe and appropriate state and local officials, including officials of other nearby tribes. In addition, California's Governor must concur in the determination before gaming could occur on the Barstow property.

Management Contract

Congress enacted the IGRA with the stated purpose of providing a statutory basis for the operation and regulation of gaming by Native American tribal governments. As part of its regulatory function, the National Indian Gaming Commission (NIGC), which was established under IGRA, is charged with the authority to approve management contracts between tribal governments and outside management groups. To approve a management contract, the NIGC must determine that the contract is consistent with IGRA in terms of contract period, management company payment, and protection of tribal authority; additionally, extensive background checks of the management company's key personnel are conducted.

The proposed management contract would assist the Tribe in obtaining funding for the development of the proposed hotel and casino complex and is necessary because the Tribe presently lacks the necessary expertise to manage a hotel and casino complex. LCB Barwest, L.L.C., a Michigan limited liability company, and an affiliate of Barwest, would be the manager for the Tribe. Once the facilities become operational, the management company would have the exclusive right to manage day-to-day operations of the hotel and casino complex for a specified period of time. The management company must comply with the terms of IGRA and NIGC's regulatory requirements relating to the operation of the Indian gaming facilities. The Tribal governments maintain the ultimate authority and responsibility for the development, operation, and management of the gaming facility pursuant to IGRA, NIGC regulations, the Tribal Gaming Ordinances, and the Tribal/State Compact.

Municipal Services Agreement

The Tribe has entered into a Municipal Services Agreement (MSA) with the City that applies only to Alternative A and Alternative B. In the MSA, the Tribe has agreed to compensate the City annually for potential and perceived impacts related to development of the casino-hotel complex on the project site. In turn, the City has agreed to support the efforts of the Tribe to take the project site into trust and develop a casino-hotel complex on the site (**Appendix D** of the Draft EIS/TEIR).

Casino-Hotel Development

Alternative A is located within the incorporated boundaries of the City of Barstow (City), just east of Interstate 15; State Highways 58 and 247 and Interstate 40 are located nearby. Alternative A consists of the development of a casino with approximately 88,500 square feet of gaming floor, a 160-room hotel, and associated facilities. **Figure 2-4** shows the site plan for Alternative A. **Figure 2-5** shows the conceptual architectural rendering of the proposed hotel and casino complex.

Associated facilities would include food and beverage services, retail space, banquet/meeting space, and administration space. Food and beverage facilities would include two full service restaurants, a "Drive-in" restaurant, a buffet, a coffee shop, three service bars, and a lounge bar. The 11-story high-rise hotel would include 16 rooms per floor and dining facility on the top floor. Both the gaming facility and the hotel would be open 24 hours a day, seven days a week, while the "Drive-in" restaurant would be open from 10:30 a.m. to 10:30 p.m. **Table 2-1** provides a cumulative breakdown of proposed uses with associated square footages for the proposed hotel and casino complex. Approximately 1,309 employment positions would be generated on-site through the buildout of Alternative A.

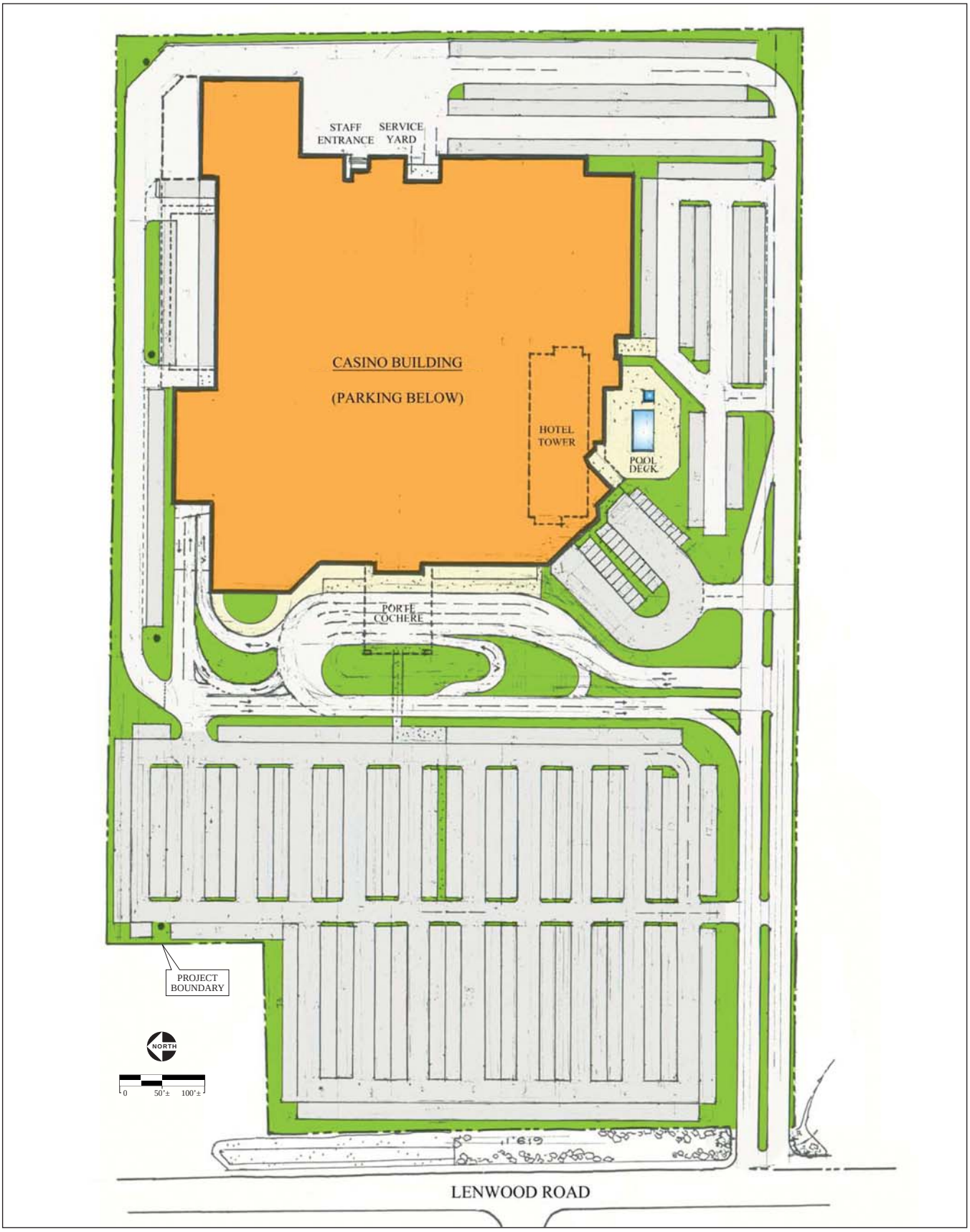
The main access to the casino and hotel complex would be located along Lenwood Road at the southern boundary of the project site. Improvements to this access intersection will be made as described in **Section 5.7**, to manage the ingress and egress of traffic at the project site.

Parking

A total of 1,255 surface-level parking spaces and 10 surface-level motorcycle spaces would be provided to serve the patrons and employees of the hotel and casino complex and supporting facilities. An additional 637 below-ground parking spaces would also be provided to serve patrons of the hotel and casino complex.

Wastewater Treatment and Disposal

As shown in **Table 2-2**, the projected average daily wastewater flow for Alternative A would be approximately 179,200 gallons per day (gpd). Consistent with Section 7 of the MSA, wastewater service for Alternative A would be provided by the City through connection to the City's collection system and wastewater treatment plant (WWTP). An existing 10-inch diameter sewer line would be extended from the intersection of Lenwood and Mercantile to the project site as part of Alternative A. In accordance with Section 7 of the MSA, the Tribe shall pay sewer connection fees and a monthly sewer service charge to the City, obtain required easements for sewer infrastructure (if needed), construct to City sewer infrastructure standards, and pay all costs of constructing sewer infrastructure necessary to connect the casino and hotel to existing sewer services.



SOURCE: Bergman Walls & Associates, 4/10/2009; AES, 2011

Figure 2-4
Alternative A Site Plan

SOURCE: Bergman Walls & Associates, 4/10/2009; AES, 2011

Figure 2-5
Architectural Rendering of Alternative A

TABLE 2-1
ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX COMPONENTS

Area	Seats/Rooms Parking Spaces	Approximate Square Footage
Casino		
Casino Gaming		88,500
Casino Circulation and Elevators		5,400
Restrooms (2 sets)		6,000
Cashier's Cage and Count		4,500
Back of House		32,020
Retail		
Gift Shop		900
Food and Beverage		
Lounge Bar	150	4,500
Service Bar (3)		3,200
Coffee Shop	120	3,200
Restaurants and Food Courts		14,700
Food and Beverage Offices		250
Kitchens		6,000
Entertainment/Amenities		
Night Club (2 stories)		9,000
Banquet Room		5,400
Meeting Rooms		1,800
Pre-function		1,350
Arcade		5,400
Workout Area		1,800
Kids' Play Area		5,400
Hotel		
Lodging Area	160 rooms	113,600
High-rise Dining Floor		11,360
Lobby/Registration		1,800
Elevator Penthouse		600
Baggage		600
Pool		
Swimming Pool	25' x 50'	
Whirlpool		
Pool Deck and Lounges		20,000
Pool Equipment		300
Employee Areas		
Staff Dining		1,800
Staff Lounge		1,800
Housekeeping and Porters		3,600
Uniform Issues + Change, Toilets		4,500
Support Facilities		
Central Plant		7,200
Warehouse		4,500
Loading Dock, Trash Dock		1,200
Engineering		4,500
Receiving + Purchasing		600
Parking		
Total (1,255 surface + 637 below ground)	**1,892**	
Alternative A Total Square Footage of Main Level (including pool deck)		***251,720***
ALTERNATIVE A TOTAL SQUARE FOOTAGE (main level and high-rise)		***377,280***
Source: Bergman, Walls, and Associates, 2009; AES, 2010.		

TABLE 2-2
ALTERNATIVE A – POTABLE WATER/WASTEWATER DEMAND ESTIMATES

Area	Square Footage	Utilization Rate	WW gpd/unit[a]	WW Flow (gpd)[b]	Water Demands (gpd)[c]
Casino					
Casino Gaming	88,500	70%	0.55	34,100	38,310
Casino Circulation and Elevators	5,400	N/A	N/A	N/A	N/A
Restrooms (2 sets)	6,000	70%	0.6	2,600	2,920
Cashier's Cage and Count	4,500	70%	0.1	400	450
Back of House	32,020	70%	0.15	3,400	3,820
Retail					
Gift Shop	900	60%	0.5	300	340
Food and Beverage					
Lounge Bar	4,500	45%	1.5	3,100	3,480
Service Bar	3,200	45%	1.5	2,200	2,470
Coffee Shop	3,200	45%	1.5	2,200	2,470
Restaurants and Food Courts	14,700	45%	1.8	12,000	13,480
Food and Beverage Offices	250	45%	0.7	4,900	5,510
Kitchen[e]	6,000	N/A	N/A	N/A	N/A
Entertainment /Amenities					
Night Club	9,000	45%	1.5	6,100	6,850
Banquet Room	5,400	40%	1.1	2,400	2,700
Meeting Rooms	1,800	40%	1.1	800	900
Pre-function	1,350	N/A	N/A	N/A	N/A
Arcade	5,400	45%	1.2	3,000	3,370
Workout Area	1,800	45%	1.2	1,000	1,120
Kids' Play Area	5,400	45%	1.2	3,000	3,370
Hotel					
Lodging Area	113,600	60%	1.1	75,000	84,270
High-rise Dining Floor	11,360	45%	1.8	9,300	10,450
Lobby/Registration	1,800	N/A	N/A	N/A	N/A
Elevator Penthouse	600	60%	0.5	200	220
Baggage	600	N/A	N/A	N/A	N/A
Pool					
Swimming Pool (25' x 50')					
Pool Deck and Lounges	20,000	40%	0.5	4,000	4,490
Pool Equipment	300	N/A	N/A	N/A	N/A
Employee Areas					
Staff Dining	1,800	60%	0.5	600	670
Staff Lounge	1,800	60%	0.4	500	560
Housekeeping and Porters	3,600	60%	0.4	1,100	1,240
Uniform Issues + Change, Toilets	4,500	60%	0.4	600	670
Support Facilities					
Central Plant	7,200	60%	1.8	7,800	8,760
Warehouse	4,500	60%	0.6	1,700	1,910
Loading Dock, Trash Dock	1,200	N/A	N/A	N/A	N/A
Engineering	4,500	50%	0.5	1,200	1,350
Receiving + Purchasing	600	50%	0.5	200	220
Total Square Footage	377,280				
Average Daily Wastewater Flow/Water Demand				179,200	201,310
Peak Day Wastewater Flow/Water Demand [d]				358,400	402,620
Recommended WWTP Capacity				***375,000***	

Source: HydroScience, 2006; AES 2010
Notes: N/A – Area use would not generate wastewater. (a) Typical unit flow for gaming facilities; (b) Flows rounded up to the nearest 100 gpd; (c) Assumes 11% loss rate from consumption to wastewater flow, based on the ratio of average water demand to average wastewater flows (typical for gaming facilities); (d) Assumes peaking factor of 2.0 times the average day flow (typical for gaming facilities); (e) water/wastewater estimates for the kitchens have been included in the Restaurants and Food Court.

Water Supply

As shown in **Table 2-2**, the projected average water demand for Alternative A would be 201,310 gpd. Consistent with Section 8 of the MSA, the Tribe would obtain potable water supply from Golden State Water Company (GSWC). Water would be supplied via an existing 16-inch diameter line that runs along the west side of Lenwood Road. Currently the water line terminates at Mercantile Way, just north of the Barstow site. The line would be extended from the current termination point and connected to the hotel and casino complex (HydroScience, 2006). For fire flow, a fire pump and jockey pump would be located on site to help maintain static pressure as recommended by the Barstow Fire Protection District.

Grading and Drainage

Construction would involve grading and excavation for building pads, parking lots, and below-ground parking. The project site is relatively flat, so the only significant export of fill from the site would be from the below-ground parking lot. Approximately 71,296 cubic feet of fill will be exported to an off-site location, and either reused as fill for other construction projects or disposed of at the Barstow Landfill.

With regards to drainage, the project description divides the property into four distinct areas: parking lots and roadways, buildings, landscaped areas, and infiltration areas. The project utilizes collection basins, landscaped areas, infiltration swales, and an infiltration basin to reduce peak runoff flows from the implementation of Alternative A to pre-existing conditions (Questa, 2007; **Appendix E** of the Draft EIS/TEIR).

As described in the Drainage and Water Quality Analysis (Questa, 2007, **Appendix E** of the Draft EIS/TEIR) under Alternative 2, the western portion of the property, north of the access road and west of the parking lot, would be developed as an infiltration basin. The area is approximately 500 feet long and 30 feet wide and makes up the majority of the frontage along Lenwood Road. The basin would be used to store excess runoff from the adjacent parking lot, eastern parking lot, and western infiltration swale. Stormwater collected from the western parking lot would be through sheet flow, while stormwater from the western infiltration swale and eastern parking lot would travel through subsurface pipes before discharging into the infiltration basin. During high flow storm events, the infiltration basin would overflow into an inundation area consisting of the western portion of the parking lot up to the first row of parking stalls (see Figure 2-2 of **Appendix E** of the Draft EIS/TEIR). If stormwater levels rise above the inundation area, excess stormwater would discharge to the Lenwood Wash, a drainage ditch that runs along Lenwood Road. Storm water has the potential to flood the project site during storms, due to the topography of the surrounding region. Therefore, as part of the project, flows originating off-site would be diverted at the property line (within the trust boundary) through a series of 36-inch diameter pipes ~~to~~ that would discharge within trust boundaries to a dissipating structure before leaving the site and entering the Lenwood Wash.

Building and Safety Standards

All construction would be developed in a manner that is consistent with the California State Building Codes and Barstow Municipal Code in effect at the time of any project development. The Tribe shall

adopt building standards and codes no less stringent that those adopted by the City, pursuant to Section 2 of the MSA. The Tribe will contract with the City to provide planning, building and safety, fire prevention, and public works personnel to review any and all construction plans and inspect construction of all improvements on or off the Trust lands.

Best Management Practices

Construction and operation of Alternative A would incorporate a variety of industry standard Best Management Practices (BMPs). In many cases, such as storm water pollution and prevention plans (SWPPP) prepared for National Pollutant Discharge Elimination System (NPDES) permits, certain BMPs are requisite conditions of permit approval. **Chapter 5.0** presents select BMPs that have been specifically incorporated into the project design to avoid or minimize potential adverse effects resulting from the development of Alternative A.

Fire Protection/Emergency Response

Fire protection and emergency response would be provided by the Barstow Fire Protection District, in accordance with Section 4 of the MSA. Fire Station 363 is located at 2600 West Main Road, approximately four miles northeast of the Barstow site. Station 363 is the nearest station to the project site and thus would provide primary response. In accordance with Section (4)(c) of the MSA, within the first two years of gaming operations the Tribe will (when requested by the City) dedicate non-federal lands adjacent to the project site for fire station use. A new Emergency Medical Services (EMS) Response vehicle would also be purchased as part of the agreement reached in the MSA.

Security/Law Enforcement

The Tribe would employ security personnel and install equipment to provide surveillance of the proposed facilities, including but not limited to the casino, hotel, parking area, and grounds. Security guards would patrol the facilities to reduce and prevent criminal and civil incidents. Security guards would carry two-way radios to request and respond to back up or emergency calls. Tribal security personnel would work cooperatively with the City Police Department, which would provide general law enforcement services to the project site. The City Police Department would have the authority to enforce all non-gaming state criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. In accordance with the MSA, the Tribe will (when requested by the City) dedicate non-federal land adjacent to the project site for law enforcement use within the first two years of gaming operations.

2.2.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX (PROPOSED PROJECT)

The development components of Alternative B would be similar to those of Alternative A including: (1) placement of three parcels totaling approximately 23.1 acres into federal trust status on behalf of the Tribe; (2) issuance of a Two-Part Determination relevant to the fee-to-trust application; (3) approval of management contract and related collateral agreements; and (4) development of a casino, hotel, and associated amenities. Under Alternative B, the casino, hotel, and associated amenities would be reduced in size.

Land Trust Action

The fee-to-trust acquisition would be completed in accordance with the procedures set forth in 25 CFR Part 151, as described under Alternative A.

Two-Part Secretarial Determination

Alternative B would require issuance of a Two-part Secretarial Determination pursuant to 25 U.S.C. § 2719 (b)(1)(A), as described under Alternative A.

Management Contract

The Tribe would seek NIGC approval of any management contract under Alternative B, as described under Alternative A.

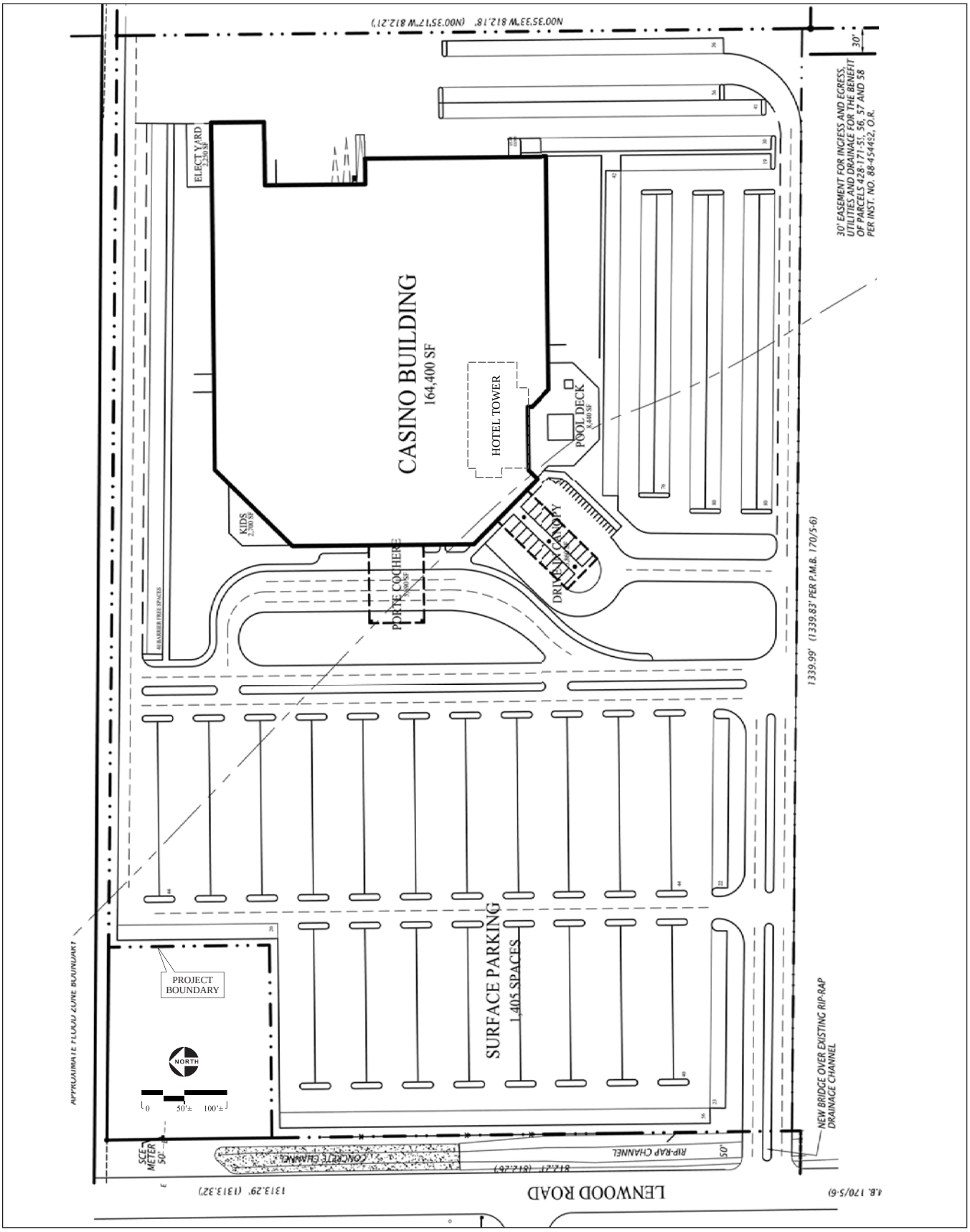
Municipal Services Agreement

As described under Alternative A, the Tribe has entered into an MSA with the City that applies only to Alternative A and Alternative B. The MSA is included in this report as **Appendix D** of the Draft EIS/TEIR.

Casino-Hotel Development

Alternative B is located on the same site as Alternative A, within the incorporated boundaries of the City (**Figures 2-2** and **2-3**). Alternative B consists of the development of a casino with approximately 57,070 square feet of gaming floor, a 100-room hotel, and associated facilities. **Figure 2-6** shows the site plan for Alternative B. **Figure 2-7** shows the conceptual architectural rendering of the proposed casino-hotel complex.

Associated facilities would include food and beverage services, retail space, banquet/meeting space, and administration space. Food and beverage service includes an Italian restaurant, a food court with four venues, a lounge bar, ~~two~~ three service bars, and a coffee shop. Additionally, a “Drive in” restaurant will be located in the southwestern corner of the casino-hotel complex. The 10-story high-rise hotel would include 9 stories of guest accommodations and a dining facility on the top floor. As with Alternative A, the gaming facility and the hotel would be open 24 hours a day, seven days a week, while the “Drive-in” restaurant would be open from 10:30 a.m. to 10:30 p.m. **Table 2-3** shows the breakdown of proposed uses with associated square footages for the proposed components under Alternative B. Approximately 1,038 employment positions would be generated on-site through the buildout of Alternative B.



SOURCE: Bergman Walls & Associates, 2/24/2010; AES, 2011

Figure 2-6
Alternative B Site Plan

SOURCE: Bergman Walls & Associates, 4/2/2010; AES, 2011

Figure 2-7
Architectural Rendering of Alternative B

TABLE 2-3
ALTERNATIVE B – REDUCED CASINO-HOTEL COMPLEX COMPONENTS

Area	Seats/Rooms Parking Spaces	Approximate Square Footage
Casino		
Casino Gaming		57,070
Casino Circulation and Elevators		7,000
Restrooms (2 sets)		3,600
Cashier's Cage and Count		3,240
Back of House		27,470
Retail		
Gift Shop		600
Food and Beverage		
Lounge Bar	120	3,000
Service Bars (3)		2,400
Coffee Shop	80	2,280
Restaurants and Food Courts		10,700
Food and Beverage Offices		180
Kitchens		9,160
Entertainment/Amenities		
Night Club		3,000
Banquet Room		3,600
Meeting Rooms		1,000
Pre-function		980
Arcade		1,800
Workout Area		900
Kids' Play Area and Play Yard		6,300
Hotel		
Lodging Area	100 rooms	77,274
High-rise Dining Floor		8,586
Lobby/Registration		1,800
Baggage		600
Pool		
Swimming Pool	20' x 40'	
Whirlpool	8' Diameter	
Pool Deck and Lounges		8,440
Pool Equipment		300
Employee Areas		
Staff Dining and Lounge		2,340
Housekeeping and Porters		2,400
Uniform Issues + Change, Toilets		3,300
Support Facilities		
Central Plant		3,480
Warehouse		2,750
Loading Dock, Trash Dock, Trash Area		2,320
Engineering		3,000
Receiving + Purchasing		530
Parking		
Surface Parking Spaces	1,405	
Alternative B Total Square Footage of Main Level (including pool deck)		***175,540***
ALTERNATIVE B TOTAL SQUARE FOOTAGE (main level and high-rise)		***261,400***
Source: Bergman, Walls, and Associates, 2010; AES, 2010.		

TABLE 2-4
ALTERNATIVE B – POTABLE WATER/WASTEWATER DEMAND ESTIMATES

Area	Square Footage	Utilization Rate	WW Gpd/Unit [a]	WW Flow (gpd)[b]	Water Demands (gpd)[c]
Casino					
Casino Gaming	57,070	70%	0.55	22,000	24,720
Casino Circulation and Elevators	7,000	N/A	N/A	N/A	N/A
Restrooms (2 sets)	3,600	70%	0.6	1,600	1,800
Cashier's Cage and Count	3,240	70%	0.1	300	340
Back of House	27,470	70%	0.15	2,900	3,260
Retail					
Gift Shop	600	60%	0.5	200	220
Food and Beverage					
Lounge Bar	3,000	45%	1.5	2,100	2,360
Service Bars	2,400	45%	1.5	1,700	1,910
Coffee Shop	2,280	45%	1.5	1,600	1,800
Restaurants and Food Courts	10,700	45%	1.8	8,700	9,780
Food and Beverage Offices	180	45%	0.7	100	110
Kitchen[e]	9,160	N/A	N/A	N/A	N/A
Entertainment /Amenities					
Night Club	3,000	45%	1.5	2,100	2,360
Banquet Room	3,600	40%	1.1	1,600	1,800
Meeting Rooms	1,000	40%	1.1	500	560
Pre-function	980	N/A	N/A	N/A	N/A
Arcade	1,800	45%	1.2	1,000	1,120
Workout Area	900	45%	1.2	500	560
Kids' Play Area and Play Yard	6,300	45%	1.2	3,500	3,930
Hotel					
Lodging Area	77,274	60%	1.1	51,100	57,420
High-rise Dining Floor	8,586	45%	1.8	7,000	7,870
Lobby/Registration	1,800	N/A	N/A	N/A	N/A
Baggage	600	N/A	N/A	N/A	N/A
Pool					
Swimming Pool (25' x 50')					
Pool Deck and Lounges	8,440	40%	0.5	1,700	1,910
Pool Equipment	300	N/A	N/A	N/A	N/A
Employee Areas					
Staff Dining and Lounge	2,340	60%	0.5	800	900
Housekeeping and Porters	2,400	60%	0.4	600	670
Uniform Issues + Change, Toilets	3,300	60%	0.4	800	900
Support Facilities					
Central Plant	3,480	60%	1.8	3,800	4,270
Warehouse	2,750	60%	0.6	1,000	1,120
Loading Dock, Trash Dock	2,320	N/A	N/A	N/A	N/A
Engineering	3,000	50%	0.5	800	900
Receiving + Purchasing	530	50%	0.5	200	220
Total Square Footage	265,260				
Average Daily WW Flow/Water Demand				118,200	132,810
Peak Day Wastewater Flow/Water Demand [d]				236,400	265,620
Recommended WWTP Capacity				***250,000***	

Source: HydroScience, 2006; AES 2010
Notes: N/A – Area use would not generate wastewater. (a) Typical unit flow for gaming facilities; (b) Flows rounded up to the nearest 100 gpd; (c) Assumes 11% loss rate from consumption to wastewater flow, based on the ratio of average water demand to average wastewater flows (typical for gaming facilities); (d) Assumes peaking factor of 2.0 times the average day flow (typical for gaming facilities); (e) water/wastewater estimates for the kitchens have been included in the Restaurants and Food Court.

Parking

Alternative B would provide up to 1,405 surface-level parking spaces and 10 surface-level motorcycle spaces to serve the patrons and employees of the casino complex. Alternative B does not include below-ground parking.

Wastewater Treatment and Disposal

As with Alternative A, Alternative B would tie into the City of Barstow's WWTP via an existing 10-inch diameter sewer line that would be extended from the intersection of Lenwood and Mercantile to the project site. In accordance with Section 7 of the MSA, the Tribe shall pay sewer connection fees and a monthly sewer service charge to the City, obtain required easements for sewer infrastructure (if needed), construct to City sewer infrastructure standards, and pay all costs of constructing sewer infrastructure necessary to connect the casino-hotel complex to existing sewer services. As shown in **Table 2-4**, the projected average daily wastewater flow for Alternative B would be 118,200 gpd.

Water Supply

As with Alternative A, GSWC would supply water for Alternative B consistent with Section 8 of the MSA. The 16-inch diameter line that runs along the west side of Lenwood Road would need to be extended from the current termination point at Mercantile Way, to the Barstow site. The projected average water demand for Alternative B would be 132,810 gpd (See Table 2-4). For fire flow, a fire pump and jockey pump would be located on site to help maintain static pressure.

Grading and Drainage

Alternative B does not include below-ground parking and so would not require significant import or export of fill from the relatively flat site. The drainage features would be identical to those described under Alternative A, though ~~less~~ slightly more conveyance and detention capacity would be required due to the additional paved surface parking area.

Building and Safety Standards

As with Alternative A, all construction would be in accordance with California State Building Codes and City standards and codes pursuant to Section 2 of the MSA.

Best Management Practices

As discussed under Alternative A, **Chapter 5.0** presents select BMPs that have been specifically incorporated into the project design to avoid or minimize potential adverse effects resulting from the development of Alternative B.

Fire Protection/Emergency Response

In accordance with Section 4 of the MSA fire protection and emergency response would be provided by the Barstow Fire Protection District. Fire Station 363 is the nearest station to the Barstow site and would

provide primary response. Station 363 is located at 2600 West Main Road, approximately 4 miles northeast of the Barstow site.

Security/Law Enforcement

Security and law enforcement for Alternative B would be similar to as described for Alternative A. Tribal security personnel would work cooperatively with the City Police Department, which would provide general law enforcement services. The City Police Department would have the authority to enforce all non-gaming state criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA.

2.2.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Alternative C consists of: (1) approval of a management contract and (2) development of a Class III casino on land held in trust for the Los Coyotes Band of Cahuilla and Cupeño Indians (Tribe). The Tribe would need to negotiate a compact with the State to allow Class III gaming on the Reservation.

Los Coyotes Site

The Los Coyotes Reservation consists of approximately 25,050 acres of Tribal trust land located between the Cleveland National Forest and Anza-Borrego Desert State Park. The site is about 70 miles northeast of the City of San Diego and 37 miles northeast of the City of Escondido, San Diego County, California. The closest community is the unincorporated town of Warner Springs, which is located approximately 6 miles west of the reservation. The reservation is remote, extremely mountainous, and surrounded by various state and federal forest, park and public domain lands, and is therefore largely undeveloped with minimal infrastructure in place. Access to the reservation is from State Highway 79. **Figure 2-8** shows the regional location of the Los Coyotes site, and **Figure 2-9** shows the vicinity of the site. **Figure 2-10** shows an aerial photo of the Los Coyotes site.

Land Trust Action

A fee-to-trust acquisition would not be necessary for Alternative C because the Los Coyotes site is on land that is already in federal trust for the Tribe.

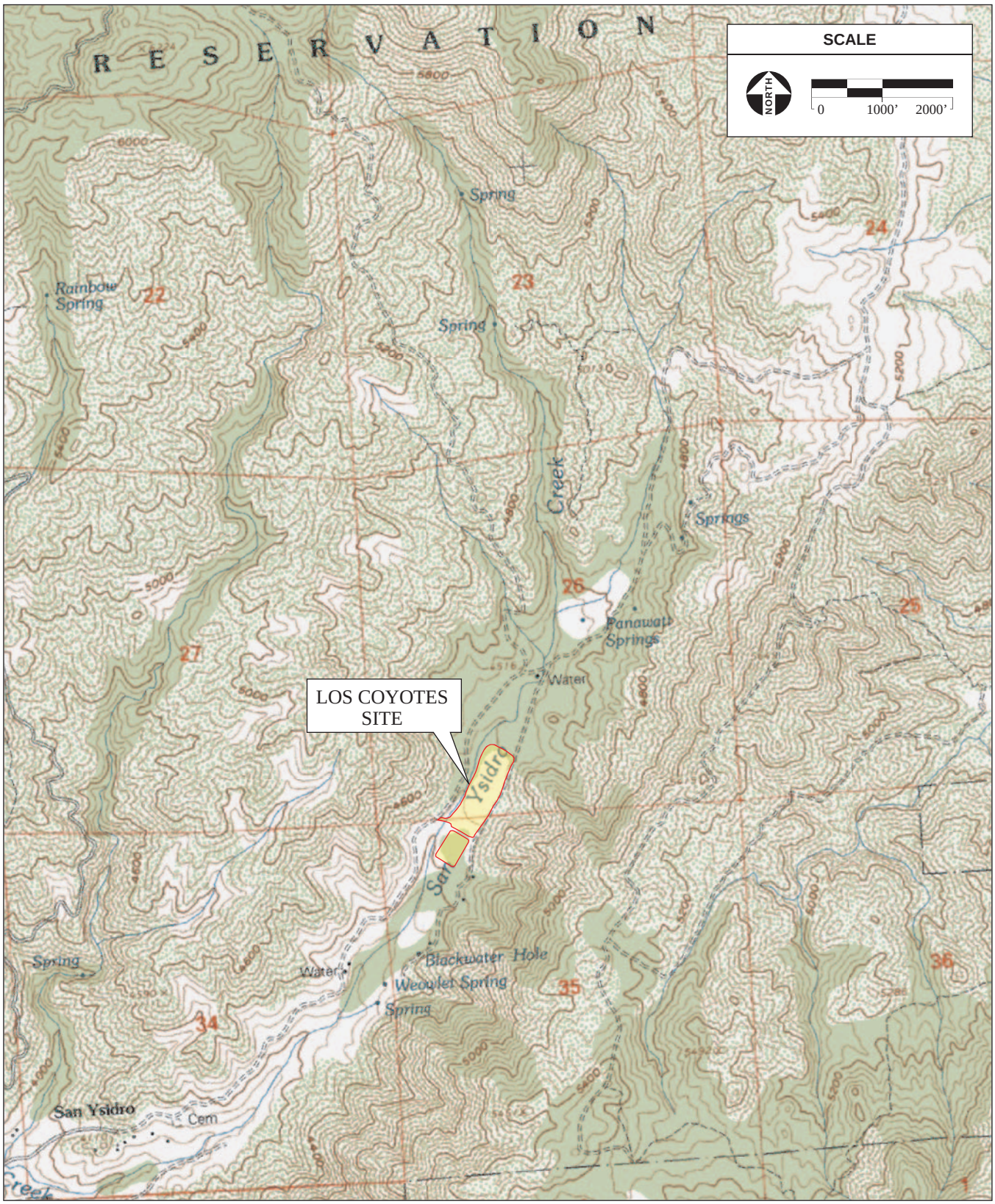
Two-Part Secretarial Determination

Alternative C does not require a two-part Secretarial determination because the land is already in federal trust for the Tribe.

SOURCE: ESRI Data, 2004; AES, 2011

Figure 2-8

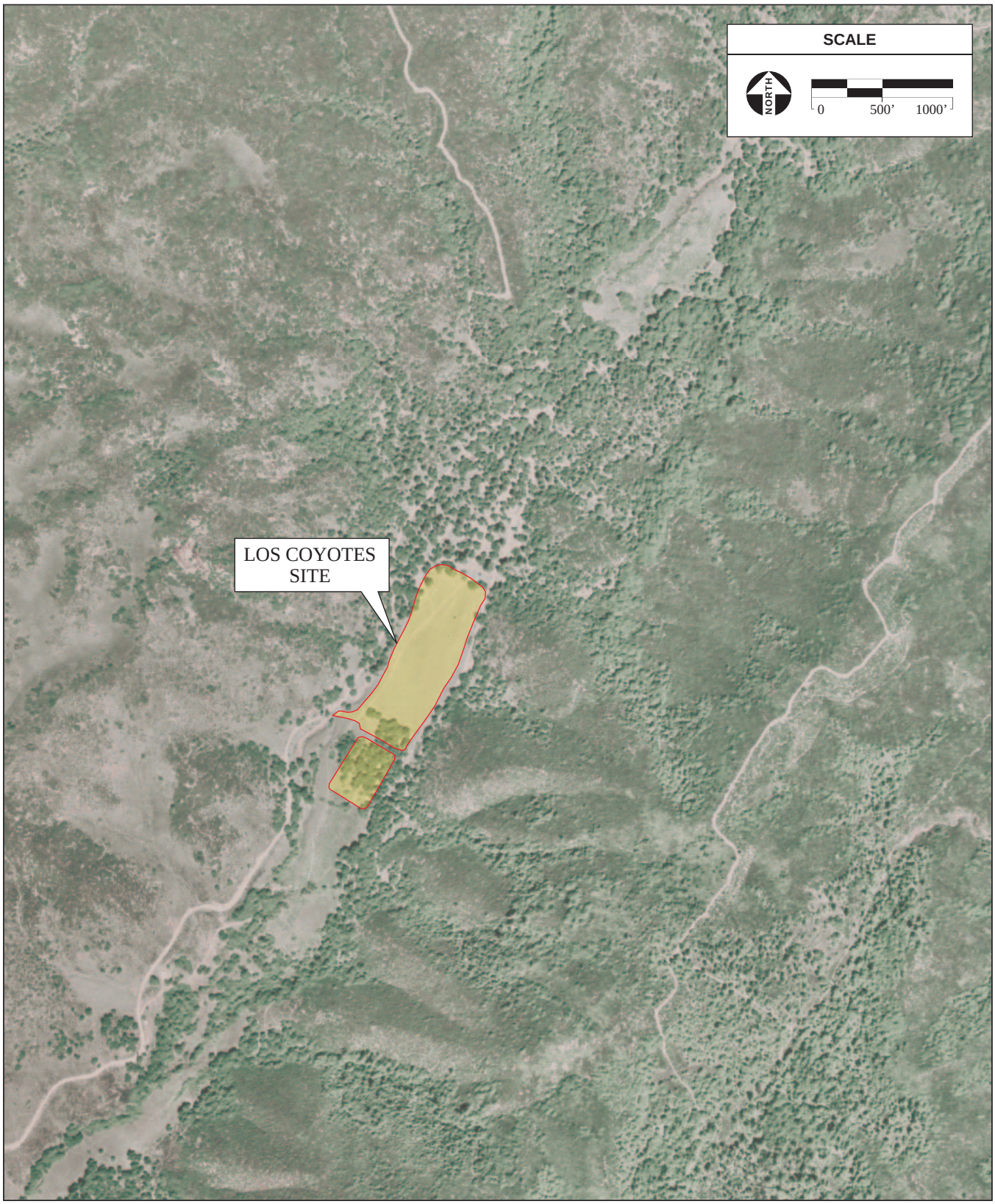
Regional Location Map – Los Coyotes Site



SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 2-9

Site and Vicinity Map – Los Coyotes Site



SOURCE: USGS Aerial Photograph, 5/28/2002; AES, 2011

Figure 2-10
Aerial Site Map – Los Coyotes Site

Management Contract

NIGC approval of a management contract for the Tribe would allow LCB Barwest, LLC to assist the Tribe in securing funding for development and in managing the day-to-day operations at the gaming facility.

Municipal Services Agreements

The Tribe has not entered into a MSA for Alternative C, but would be willing to negotiate appropriate compensation to San Diego County for services provided to the casino development.

Casino Development

Approximately 19 acres of reservation land would be utilized for development and operation of a 25,000-square-foot Class III gaming facility. It is anticipated that the facility would be open 24 hours a day, 7 days a week, and it would employ approximately 105 people. **Table 2-5** provides a breakdown of proposed uses with associated square footages for the Alternative C casino. **Figure 2-11** shows the site plan for the proposed casino, including supporting facilities. Access to the Los Coyotes site would be provided through improvements to an existing access road.

TABLE 2-5
ALTERNATIVE C – LOS COYOTES RESERVATION CASINO COMPONENTS

Area	Seats/Rooms/ Parking Spaces	Approximate Square Footage
Main Floor		
Casino Gaming		16,000
Restaurant/Lounge/Snack Shop/Gift Shop		3,500
Mezzanine		
Offices, Back of House, Security, Employee Lounge		5,500
Total Square Footage Alternative C		**25,000**
Parking		
Surface Parking Spaces	450	
Source: AES, 2010		

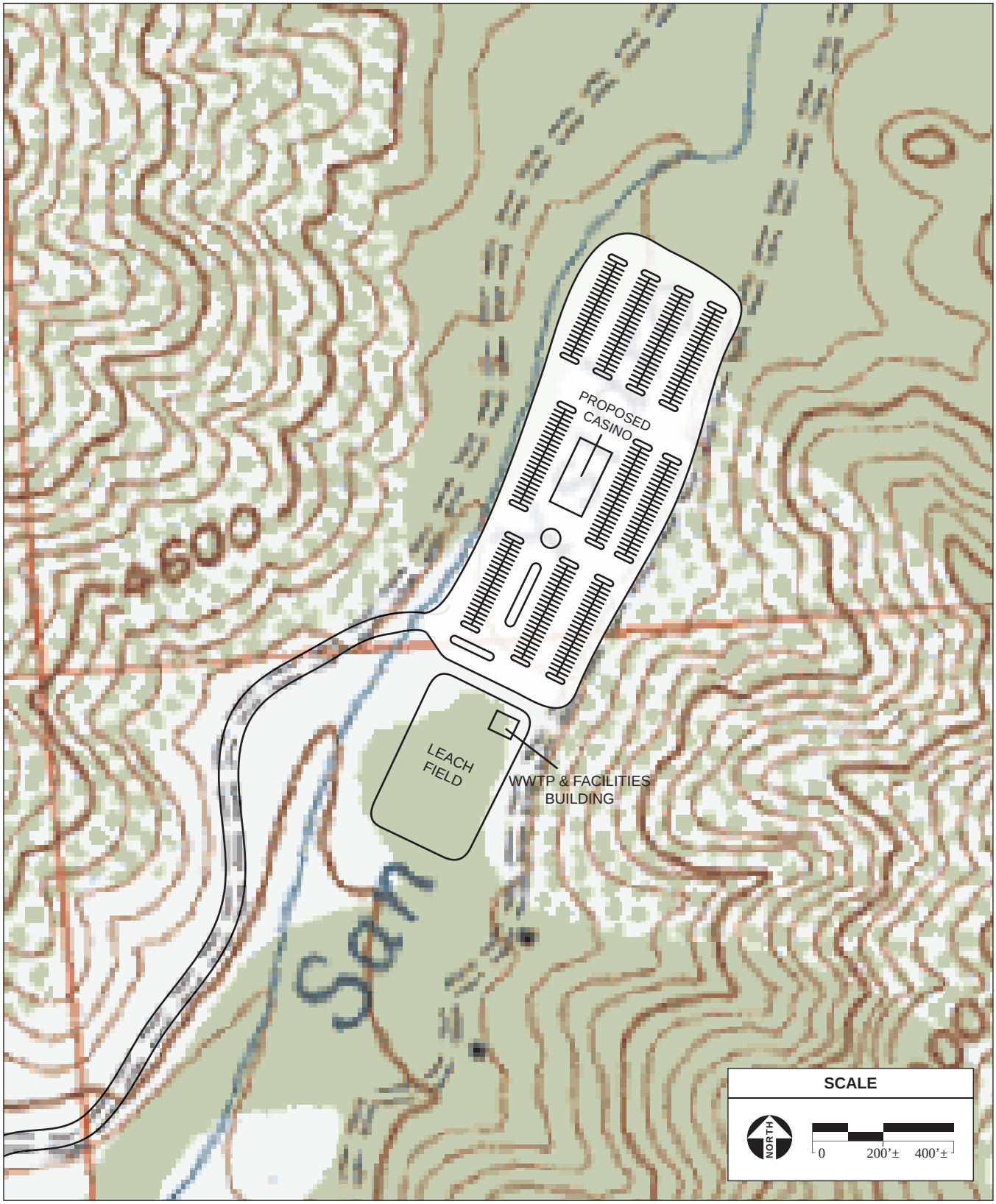
Parking

A total of 450 parking spaces would be provided to serve the patrons and employees of the casino and supporting facilities.

Wastewater Treatment and Disposal

The average daily wastewater flow generated by Alternative C would be approximately 8,900 gallons (See **Table 2-6**). As there is no existing WWTP near the Los Coyotes site, a wastewater collection, treatment, and disposal system would be constructed. The WWTP would have a capacity of 20,000 gpd.

A pressurized force main from the triplex sewage lift station would convey wastewater to the fine screen headworks of the WWTP. A tertiary treatment utilizing a membrane bioreactor (MBR) would be used, so



SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 2-11

Alternative C Site Plan – Los Coyotes Reservation Casino

that the treated wastewater could be recycled and possibly used for landscaping or within facility restrooms. Treated wastewater would be disposed of through a subsurface disposal system that includes drip irrigation used in landscaping and a leach field area ~~beneath~~ south of the parking lot. The Tribe would comply with the Underground Injection Control provisions of the Clean Water Act relating to underground injection of recycled water regulated as a Class V injection well (HydroScience, 2006).

TABLE 2-6
ALTERNATIVE C – POTABLE WATER/WASTEWATER DEMAND ESTIMATES

Area	Square Footage	Utilization Rate	WW Gpd/Unit [a]	WW Flow (gpd)[b]	Water Demands (gpd)[c]
Casino					
Casino Gaming	16,000	60%	0.55	5,300	6020
Restaurants/Lounge/Snack Shop/Gift Shop	3,500	60%	1.1	2,300	2610
Offices, Back of House, Security, Employee Lounge	5,500	60%	0.4	1,300	1480
Total Square Footage	25,000				
Average Daily WW Flow/Water Demand				8,900	10,110
Peak Day WW Flow/Water Demand[d]				17,800	20,220
Recommended WWTP Capacity				**20,000**	

Source: HydroScience, 2006; AES 2010
Notes: (a) Typical unit flow for gaming facilities; (b) Flows rounded up to the nearest 100 gpd; (c) Assumes 12% loss rate from consumption to wastewater flow, based on the ratio of average water demand to average wastewater flows at similar facilities; (d) Assumes peaking factor of 2.0 times the average day flow (typical for gaming facilities).

Water Supply

Under this alternative, a new well would be constructed on the reservation to supply the project with potable water. It is anticipated that groundwater would be encountered at 150 to 350 feet below ground surface (bgs), and would be sufficient to supply the estimated average daily and peak water demands for this alternative (HSe, 2006) (See **Table 2-6**).

It is not likely that a water treatment facility would be needed as wells in the vicinity are of good quality and do not require filtration or any other treatment (HSe, 2006). The water system would be injected with chlorine to maintain a chlorine residual throughout the distribution system.

A water storage tank would be constructed to store potable water at the Los Coyotes project site. Storage requirements for fire flow for casinos and other public buildings are generally controlled by fire protection requirements, and not by domestic peaking requirements. The preliminary estimate of fire flow requirements for the facilities is 300,000 gallons, based on 2,500 gpm for a two-hour period (HSe, 2006).

Grading and Drainage

Under Alternative C, the parking lots would have filter strips leading to catch basins that drain into storm drains, with stormwater interceptors interspersed throughout the system. The storm drains would discharge to linear detention ponds located along the southern and western borders of the parking lots. The detention basins would then discharge stormwater into San Ysidro Creek, located along the western

border of the project site, at flows consistent with pre-existing conditions through metered discharge pipes. Detention of 0.5 and 0.6 acre-feet for the 10-year and 100-year storms, respectively, would be required to ensure runoff rates do not exceed pre-existing conditions (Questa, 2007). Building pad elevations would be constructed above the 100-year floodplain of the San Ysidro Creek.

Building and Safety Standards

All construction would be in accordance with ~~California~~ International ~~State~~ Building Codes.

Best Management Practices

As discussed under Alternative A, **Chapter 5.0** presents select BMPs that have been specifically incorporated into the project design to avoid or minimize potential adverse effects resulting from the development of Alternative C.

Fire Protection/Emergency Response

Alternative C would receive fire and emergency medical services from California Department of Forestry and Fire Protection (CDF) and Sunshine Summit Volunteers. The year-round CDF station providing service to the reservation is located at 31049 Highway 79, Warner Springs.

Security/Law Enforcement

The Tribe would employ security personnel and install equipment to provide surveillance of the proposed facility, including the casino, parking area, and grounds. Security guards would patrol the facilities to reduce and prevent criminal and civil incidents. In the Los Coyotes Reservation service area, the San Diego Sheriff's Department provides general patrol and law enforcement investigative services, and California Highway Patrol (CHP) provides traffic services. The Ranchita substation serves the reservation and is located approximately 4.5 miles southwest of the Los Coyotes site. Under Public Law 280, the State of California and other local law enforcement agencies have enforcement authority over criminal activities on tribal land.

2.2.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Development under Alternative D would involve construction and operation of a campground on 19 acres of Tribal trust land. The proposed Los Coyotes site and vicinity is described in detail in **Section 2.2.3**.

Land Trust Action

A fee-to-trust acquisition would not be necessary under Alternative D because the Los Coyotes site is on land that is already in federal trust for the Tribe.

Two-Part Secretarial Determination

A two-part Secretarial determination would not be necessary because no gaming is proposed under this alternative.

Management Contract

Management contract approval by the NIGC would not be needed for Alternative D because there would be no gaming facility and IGRA would not apply.

Municipal Services Agreement

The Tribe has not entered into a municipal services agreement for Alternative D. The Tribe may consider some form of appropriate compensation for services provided by San Diego County to the campground, depending on the level of services provided and revenues generated by the campground development.

Campground Development

Alternative D consists of the development of a campground with 213 campsites and supporting facilities, located on approximately 19 acres within the boundaries of the Los Coyotes Reservation (**Figures 2-8** and **2-9**). The campground would be open 24 hours a day, 7 days a week and would create an estimated eight jobs. Associated facilities would include an office, a maintenance facility, and restrooms. **Figure 2-12** shows the site plan for the proposed campground, including supporting facilities.

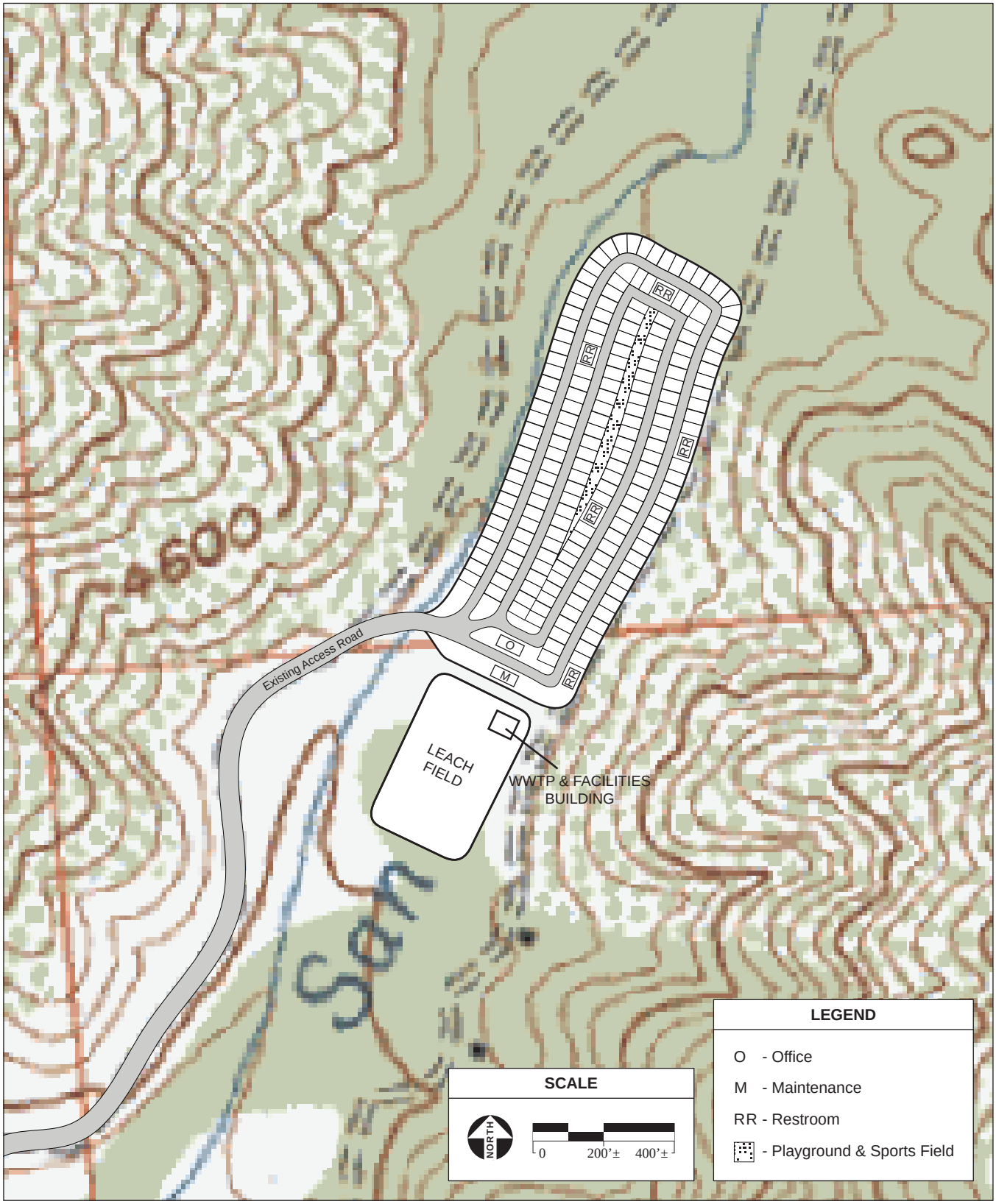
Table 2-7 provides a breakdown of proposed uses with associated square footages for the proposed campground. Access to the campground would be provided through improvements to an existing access road.

TABLE 2-7
ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND COMPONENTS

Area	Number of Facilities or Spaces	Approximate Square Footage
Campsites	213	348,780
Restrooms	6	4,800
Office	1	1,000
Playground	1	1,000
Sports Field	1	2,000
Maintenance	1	1,000
Source: AES, 2010		

Parking

A total of 220 parking spaces would be provided to serve the patrons and employees of the campground and supporting facilities.



SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 2-12

Alternative D Site Plan – Los Coyotes Reservation Campground

Wastewater Treatment and Disposal

As shown in **Table 2-8**, the projected average daily wastewater flow for Alternative D is 6,400 gallons.

TABLE 2-8
ALTERNATIVE D – POTABLE WATER/WASTEWATER DEMAND ESTIMATES

Area	Number	Units	Utilization Rate	WW Gpd/Unit [a]	WW Flow (gpd)[b]	Water Demands (gpd)[c]
Campsites (2.5 persons * 213 Campsites)	533	Persons	40%	25	5,300	5,960
Restrooms (2.5 persons * 213 Campsites)	533	Persons	40%	5	1,100	1,240
Office	2	Employees	40%	13	10	10
Playground	na	na	na	na	na	
Sports Field	na	na	na	na	na	
Maintenance	na	na	na	na	na	
Average Day WW Flow/Water Demand					6,400	7,210
Peak Day WW Flow/Water Demand[b]					9,600	10,815[e]
Recommended WWTP Capacity					**10,000**	

Source: HydroScience, 2006; AES 2010
Notes: (a) Typical unit flow for gaming facilities; (b) Flows rounded up to the nearest 100 gpd; (c) Assumes 11% loss rate from consumption to wastewater flow, based on the ratio of average water demand to average wastewater flows at similar facilities; (d) Assumes peaking factor of 2.0 times the average day flow (typical for gaming facilities).

Since no municipal sewer service is available in the area, the Tribe proposes to construct an on-site WWTP with a capacity of 10,000 gpd. As with Alternative C, tertiary treatment utilizing an MBR would be used, so that the treated wastewater could be recycled within facility restrooms. Wastewater would be disposed of through a subsurface disposal system that includes drip irrigation used in landscaping and a disposal area ~~beneath~~ south of the parking lot.

Water Supply

Under this alternative, a new well would be constructed on the reservation to supply the project with potable water. Tests show that groundwater would be encountered at 150 to 350 feet bgs, and would be sufficient to supply the average daily and peak water demands for this alternative (HSe, 2006). As with Alternative C, it is not likely that a water treatment facility would be needed as wells in the vicinity are of good quality and do not require filtration or any other treatment (HSe, 2006).

Grading and Drainage

The overall design of the drainage plan would be similar to that for Alternative C. The drainage plan includes landscaped areas, parking filter strips, and detention basins. Detention of 0.17 and 0.19 acre-feet

for the 10-year and 100-year storms, respectively, would be required to ensure runoff rates do not exceed pre-existing conditions (Questa, 2007). The total combined storage volumes of the filter strips, landscape areas, and detention basins would provide the necessary detention, reducing impacts from the construction of impervious surfaces. Building pad elevations would be constructed above the 100-year floodplain elevation of the San Ysidro Creek.

Building and Safety Standards

As with Alternative C, all construction would be in accordance with ~~California State~~International Building Codes.

Best Management Practices

As discussed under Alternative A, **Chapter 5.0** presents select BMPs that have been specifically incorporated into the project design to avoid or minimize potential adverse effects resulting from the development of Alternative D.

Fire Protection/Emergency Response

Alternative D would receive fire and emergency medical services from CDF and Sunshine Summit Volunteers. The year-round CDF station providing service to the Reservation is located at 31049 Highway 79 in Warner Springs.

Security/Law Enforcement

In the Los Coyotes Reservation service area, the San Diego Sheriff's Department provides general patrol and law enforcement investigative services, and CHP provides traffic services. The Ranchita substation serves the Reservation and is located approximately 4.5 miles southwest of the Los Coyotes site. Under Public Law 280, the State of California and other local law enforcement agencies have enforcement authority over criminal activities on Tribal land.

2.2.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, land would not be taken into federal trust and the NIGC would not approve a management contract between the Tribe and their management company. Land use jurisdiction of the project site would remain with the City of Barstow. The land is located in the Lenwood Specific Plan area. Designated uses for the approximately 2,280 acres covered by the Lenwood Specific Plan include industrial, highway commercial, and related uses. Current land uses include outlet centers, freight distribution uses, visitor-serving restaurants, hotels, and truck stops.

The Barstow site (discussed under Alternatives A and B) has a designated use of Commercial-Recreational/Transition within the Specific Plan, and is in an area slated for growth and development by the City. However, there are no plans for development on the site. For the purpose of assessing potential impacts, this ~~Draft~~ EIS/TEIR assumes that the No Action Alternative would result in the continuance of existing conditions at the project site.

2.3 ALTERNATIVES ELIMINATED FROM CONSIDERATION

Section 1502.14(a) of the CEQ's Regulations for implementing NEPA requires a discussion of alternatives that were eliminated from further study, and the reasons for their having been eliminated. The alternatives discussed herein were considered and rejected from full EIS/TEIR analysis because these alternatives were deemed infeasible or would not fulfill the stated purpose and need for the Proposed Action described in **Section 1.2**. The non-gaming alternative located on the Los Coyotes Reservation (Alternative D) of the Los Coyotes site was selected due to its rural setting and limited population. It was determined that this site would lend itself to a tourism based development.

BARSTOW SITE COMMERCIAL DEVELOPMENT

The development of the Barstow site with commercial uses was initially considered due to the proximity of the site to Interstate 15. The potential for the Tribe to obtain funding for commercial development in Barstow is very low due to the reduced revenue generating potential of a commercial development versus a casino development. Gaming is the most successful economic engine that has allowed Tribes to become self-reliant and secure a long term sustainable revenue stream to support tribal governmental services and programs. Currently there is commercial development including several outlet malls located within the vicinity of the Barstow site; two of which have experienced significant losses in revenue, and both have a low tenant occupancy rate. These outlet malls have been declining with the development of a newer outlet center on the west side of Osbourne Road. A third outlet mall was recently constructed that has experienced increased success compared to the two deteriorating malls. It is assumed that the size and retail establishments of the newer outlet mall has saturated the market for high-density retail in the area and has subsequently contributed to the decline of the two older outlet malls. Thus, the increased success of the newer outlet mall and the declining revenues of the older outlet malls indicate that there is little market demand for a large concentration of high-density retail development in and around the Barstow site. As such, commercial development on the Barstow site was eliminated from further consideration as it would not be economically viable and would fail to meet the stated purpose and need of the Proposed Action.

ALTERNATIVE SITES WITHIN THE LOS COYOTES RESERVATION

The specific site proposed for development of Alternatives C and D within the Los Coyotes Reservation was selected due to the relatively flat topography and the feasibility of extending utilities to the site. As noted within the environmental setting, the Los Coyotes reservation is remote, extremely mountainous, and surrounded by various state and federal forest, park and public domain lands, and is therefore largely undeveloped with minimal infrastructure in place. The BIA has determined that alternative sites within the reservation are not sufficiently distinguishable from the site considered that their analysis would offer additional information to assist the BIA in its consideration of impacts under NEPA.

2.4 COMPARISON OF ENVIRONMENTAL CONSEQUENCES

Section 1502.14 of the Council on Environmental Quality's (CEQ's) Regulations for Implementing NEPA states that an EIS should present environmental impacts of proposed alternatives in a comparative

form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. The range of alternatives evaluated in a TEIR is governed by a "rule of reason," which requires the evaluation of alternatives "necessary to permit a reasoned choice." Alternatives considered must include those that offer substantial environmental advantages over Alternative A and which may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors. A summary comparison of each of the proposed alternatives, including the No Action alternative, is provided below.

2.4.1 SUMMARY OF ALTERNATIVES

Alternatives A and B require the following federal discretionary approvals (1) placement of three assessor's parcels in the City of Barstow, totaling approximately 23.1 acres, into federal trust status on behalf of the Tribe; (2) issuance of a Two-Part Determination relevant to the fee-to-trust application; and (3) approval of a management contract and related collateral agreements. Alternative A consists of the development of a casino-hotel complex with related amenities that include a pool, workout areas, retail space, restaurants, entertainment and banquet facilities, as well as dedicated employee and maintenance space. Under Alternative B, the components of the casino and hotel would be smaller than those in Alternative A, and would therefore have reduced construction and development costs as well as lesser environmental impacts compared to Alternative A. While the revenue would be less than Alternative A, it would represent a substantial increase over the Tribe's current economic status similar to Alternative A, allowing the Tribe to fulfill the purpose and need for revenue to support tribal government and programs for tribal members.

Alternative C requires approval of a management contract and related collateral agreements. Alternative C consists of the development of a Casino with related amenities, restaurant, lounge, snack and gift shops, as well as dedicated employee and maintenance space on the Los Coyotes reservation in San Diego County. Alternative C would incur significant development costs given the lack of existing infrastructure and remote location. The revenue generated by this alternative would be substantially reduced when compared to Alternatives A and B due to the remote location and competition from existing gaming operations in the area; and therefore programs and services the Tribal Government could offer tribal members would be substantially reduced as well.

Under Alternative D federal discretionary approvals would be limited to permitting required under sections of the Clean Water Act for potential impacts to jurisdictional waters of the United States (U.S.). Alternative D is a non-gaming alternative where the land would be developed by the Tribe as a campground. The revenue generated by this alternative would be far less than the revenues generated for Alternative C and would limit the number of programs and services the Tribal Government could offer tribal members.

Alternative E is the No Action Alternative and would require no federal discretionary approvals. Under Alternative E, the Barstow site would not be placed into trust, a gaming development and management contract would not be approved, and no development would take place on the Barstow or Los Coyotes sites.

2.4.2 COMPARISON OF ENVIRONMENTAL CONSEQUENCES

In accordance with CEQ Regulations, the alternatives considered in this document include those which could accomplish most of the basic objectives of the project, and that could avoid or substantially lessen one or more of the significant effects of the project. A detailed description of each of the proposed alternatives, including the No Action alternative, is provided above. A summary comparison of environmental impacts is provided below:

- As discussed in more detail in **Chapter 4.0** of this EIS, the environmental effects associated with Alternative A that would result from increased employment and economic growth would include an increase in demand for housing, goods, services, and public utilities. Additionally, project-related traffic associated with Alternative A would generate a significant increase in traffic congestion that may increase air emissions and noise effects, both during construction and operation. Development of Alternative A has the potential to adversely affect the desert tortoise (*Gopherus agassizii*); however, implementation of mitigation identified in **Section 5.0** would reduce potential adverse effects.

- The environmental effects associated with Alternative B that would result from increased employment and economic growth would also include an increase in demand for housing, goods, services, and public utilities, but to a lesser extent than under Alternative A. Additionally, Alternative B would generate less traffic than Alternative A and therefore would have fewer impacts associated with traffic congestion, mobile air emissions and traffic related noise effects. During construction, traffic impacts would also be less than under Alternative A, as the footprint would be smaller requiring fewer trips to deliver materials, less equipment, and fewer trips to dispose of fill as an underground parking structure would not be constructed. Development of Alternative B has a similar potential to adversely affect the desert tortoise (*Gopherus agassizii*), ~~as~~ since the acreage is the same as Alternative A and the construction schedule is not significantly reduced; however, implementation of mitigation identified in **Section 5.0** would reduce potential adverse effects.

- The environmental consequences of Alternatives C and D include less employment and economic growth for both the Tribe and neighboring communities than would occur from Alternatives A and B due to the location of the proposed development. Additionally, these alternatives are located in a more rural, less developed area where the potential for adverse environmental consequences would be more significant. Alternative C would have a greater adverse effect on public services and utilities due to the rural location of the Los Coyotes site. Alternative D would result in substantially less economic and employment growth due to the lower revenue potential of the campground development. Alternative D would also result in less project-related traffic and therefore would result in a smaller increase in air emissions and noise effects. Alternatives C and D would both have the potential to adversely affect waters of the U.S., wetland features on-site, and the Quino checkerspot butterfly, the Laguna Mountains skipper, arroyo toad, the coastal California gnatcatcher, and Stephen's kangaroo rat. Mitigation identified in **Section 5.0** would reduce these potential adverse effects.

- Alternative E, the No Action alternative would avoid all environmental effects associated with the development of Alternatives A and B on the Barstow site and thus would have significantly less environmental effects. However, this alternative would not meet the Tribe's purpose and need.

Based on the considerations discussed above, Alternative B is the alternative that best meets the purpose and need of the Tribe as it is the most cost efficient. Revenue and employment opportunities generated by Alternative B would allow the Tribe to be fully self-reliant, to provide employment opportunities for tribal members, and to strengthen the tribal government. Additionally, Alternative B would result in fewer environmental effects associated with traffic generation and mobile air emissions. For a detailed, quantitative discussion of potential environmental consequences associated with each of the alternatives, refer to **Chapter 4.0**. Measures to avoid, minimize, or mitigate adverse effects are provided in **Chapter 5.0**.

2.5 SELECTION OF ALTERNATIVE B – PREFERRED CASINO RESORT PROJECT

Consistent with the BIA NEPA Handbook, the Department of the Interior Departmental Manual (515 DM 4), the CEQ NEPA Regulations (40 C.F.R. § 1502.14), and the CEQ NEPA Forty Most Asked Questions guidance document (46 Fed. Reg. 18026 (1981)), the BIA considers an alternative's ability to meet the purpose and need of the Proposed Action and the overall impact on the environment when selecting a Preferred Alternative. In this case, the Proposed Project (Alternative B) would best meet the purpose and need of the Proposed Action, given that it would provide long-term Tribal revenues while limiting the effect on the public services and infrastructure of the local community. This revenue source would be used to effectuate the purpose of IGRA to promote "tribal economic development, self-sufficiency, and strong tribal governments (25 U.S.C. Section 2702)." The development of the Proposed Project would meet this purpose better than the other development alternatives, due to the greater environmental consequences of Alternative A and the substantially reduced revenues that would be expected from the operation of Alternatives C and D. The No Action Alternative (Alternative E) would not result in revenues to the Tribe and would therefore not meet the purpose and need of the Proposed Action.

Of the alternatives considered, the Barstow Site alternatives would result in the lowest overall impact on the environment relative to their economic benefits to the Tribe given that the Barstow Site is less biologically sensitive than the Los Coyotes Site and is closer to existing development and infrastructure. As explained above, both of the alternatives located on the Barstow Site (A and B) would meet the purpose and need of the Proposed Action. However, Alternative A would generally result in greater environmental impacts, due to the increased intensity of development. Thus, Alternative B is judged by the BIA to best meet the purpose and need while minimizing impacts on the human environment. Therefore, the BIA has selected the Proposed Project (Alternative B) as its Preferred Alternative.

CHAPTER 3.0

AFFECTED ENVIRONMENT

CHAPTER 3.0 AFFECTED ENVIRONMENT

This chapter describes the existing environment of the area that may be affected by the Los Coyotes Casino Project, as required by CEQ Regulations (40 C.F.R. § 1502.15). Descriptions include land resources, water resources, air quality, biological resources, cultural and paleontological resources, socioeconomic conditions and environmental justice, transportation/circulation, land use, public services, noise, hazardous materials, and aesthetics. The existing conditions described herein provide the baseline for determining the environmental effects identified in **Chapter 4.0**.

3.1 LAND RESOURCES

This section describes the existing land resources for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of land resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.1.1 GENERAL ISSUES

Soils

Soil Surveys

Soil surveys for the San Bernardino County and San Diego County areas were published by the Natural Resource Conservation Service (NRCS), in 1986 and 1979, respectively. Each survey maps soil units and provides a summary of major physical characteristics for each unit with management recommendations. General data on capability classes is presented in **Table 3.1-1** below. Soil characteristics specific to each site are presented in the following sections.

In the Land Capability Classification System used by the NRCS, soils are grouped according to soils capability class. A soils capability class indicates limitations on practical use for food, fiber, or forage production. Classes are designated by Roman numerals I through VIII, with each class containing soils that are enough alike to require similar management. Additional coding by subclass is indicated by lower case letters, which designate the restrictions of soil groups within each class.

Expansive Soils

Clay particles can swell by absorbing large amounts of water relative to their volume. When these particles dry out, they shrink. Then, when rain falls on the dry, cracked ground, the clays swell, the cracks close, and the ground can rise several inches (JCP, 2001). The potential for soils to demonstrate expansive properties is primarily dependent upon clay content.

TABLE 3.1-1
SOILS CAPABILITY CLASSES

Capability Class	Definition
Class I	Soils have few limitations that restrict their use; the least restricted class.
Class II	Soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
Class III	Soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.
Class IV	Soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.
Class V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use.
Class VI	Soils have severe limitations that make them generally unsuitable for cultivation.
Class VII	Soils have very severe limitations that make them unsuitable for cultivation.
Class VII	Soils and landforms restricted to use as recreation, wildlife, water supply or aesthetic purposes.
Capability Subclass	**Definition**
e	Soils have erosion problems.
w	Soils have wetness problems.
s	Soils have root zone limitations.
c	Soils have climatic limitations.
Source: NRCS, 2006	

Soil Corrosivity

Corrosion is an electrochemical process affecting degradation of metals or metal-containing materials in contact with water. Rates of corrosion vary depending on the acidity of the water, its electrical conductivity, oxygen concentration, and temperature. Both ground and surface water can be acidic. Surface water tends to have higher oxygen concentrations than groundwater. Groundwater tends to be more insulated from temperature variation than surface water.

Generally, corrosion occurs on structures that are exposed to several types of environments or electrolytes. Such electrolytes include raw and treated water, salt water and fresh water, various soils, rainwater, and airborne contaminants. These electrolytes serve to complete electrochemically corrosive circuits between different metals within the same environment. The flow of electrical current in the corrosion circuit is proportionate to the loss of metal in the corrosion process. Ferrous materials corrode at the rate of 20 pounds per ampere-year. Corrosion could compromise structural integrity in a building not designed to withstand corrosive soils.

Seismic Considerations

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act is a California state law passed in direct response to the 1971 San Fernando earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. The act requires the State Geologist to delineate "Earthquake Fault Zones" along faults that are "sufficiently active" and "well defined." A sufficiently active fault is defined as one that has evidence of Holocene surface displacement. A fault is considered well defined if its trace is clearly detectable as a physical feature at or just below the ground surface. Both of these features must be present for a fault to be zoned under the Alquist-Priolo Earthquake Fault Zoning Act (CGS, 2007).

Seismic Intensity: The Modified Mercalli Intensity Scale

The Modified Mercalli Intensity (MMI) scale (**Table 3.1-2**) is a common measure of earthquake effects due to ground shaking intensity. The MMI values for intensity range from I (earthquake not felt) to XII (damage nearly total), with damage levels representing the estimated overall level of damage that will occur for various MMI intensity levels. Intensities ranging from IV to X could cause moderate to significant structural damage. The damage, however, will not be uniform. Some buildings will experience substantially more damage than the overall level, and others will experience substantially less damage. The age, material, type, method of construction, size, and shape of a building all affect its performance.

Magnitude

On a Richter ~~Scale~~scale, the magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs, with adjustments made for the distance between the seismograph and the epicenter of the earthquake. Magnitude is expressed in whole numbers and decimal fractions. A magnitude 5.3 would be a moderate earthquake, and a strong earthquake could be a magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude, which corresponds to the release of about 31 times more energy.

Earthquakes with magnitude of about 2.0 or less are usually called microearthquakes. They are typically recorded only on local seismographs and usually not felt by people. Events with magnitudes of about 4.5 or greater are strong enough to be recorded by sensitive seismographs all over the world. Events with magnitudes of 8.0 or higher, such as the 1964 Good Friday earthquake in Alaska, are considered great earthquakes. The Richter scale is not used to express damage (USGS, 2006).

TABLE 3.1-2
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015 g[a]
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015 g
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibration similar to a passing of a truck. Duration estimated.	< 0.0015 g
IV.	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015 g-0.02 g
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03 g-0.04 g
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06 g-0.07 g
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motorcars.	0.10 g-0.15 g
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motorcars disturbed.	0.25 g-0.30 g
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50 g-0.55 g
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60 g
XI.	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60 g
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60 g

Note: [a] g is gravity = 980 centimeters per second squared.
Source: Bolt, 1988.

Liquefaction

Soil liquefaction can occur in seismic conditions. Liquefaction is the temporary transformation of saturated, non-cohesive material from a relatively stable, solid condition to a liquefied state as a result of increased soil pore water pressure. Soil pore water pressure is the water pressure between soil particles. Liquefaction can occur if three factors are present: seismic activity, loose sand or silt, and shallow ground water. Liquefaction potential has been found to be greatest where the groundwater is within a depth of 50 feet or less, and submerged loose, fine sands occur within that depth. Liquefaction potential decreases with larger soil particle size and greater depth to groundwater, and increases with greater ground acceleration and longer duration of shaking.

Lateral Spreading

Lateral spreading can occur during a seismic event in the form of horizontal ground displacement, and is typical where the ground surface is relatively flat and comprised of alluvium or depositional sediment. This movement in soils is generally due to failure along a weak sub-layer that is formed within an underlying liquefied layer. Cracks develop within the weakened material, while blocks of soil move laterally toward the free face.

3.1.2 BARSTOW SITE

Geological Setting

The Barstow site lies within San Bernardino County, which is situated in the Mojave Desert Geomorphic Province (**Figure 3.1-1**). This geomorphic province occupies approximately 25,000 square miles and is bounded by the San Andreas Fault and the Transverse Ranges to the west, the Garlock Fault and the Tehachapi Mountains to the north (in Kern County), the Nevada State line to the east, and the San Bernardino/Riverside County boundary to the south. Portions of Los Angeles and San Bernardino Counties lie within this province. Erosion~~al~~ features such as broad alluvial basins that receive non-marine sediments from the adjacent uplands dominate the Mojave Desert region. Numerous playas, or ephemeral lakebeds within internal drainage basins, also characterize the region. Throughout this province, small Hills (some the remnants of ancient mountainous topography) rise above the valleys that are surrounded by younger alluvial sediments. The highest elevation approaches 4,000 feet above mean sea level (amsl), and most valleys lie between 2,000 to 4,000 feet amsl (SCAG, 2003).

Topography

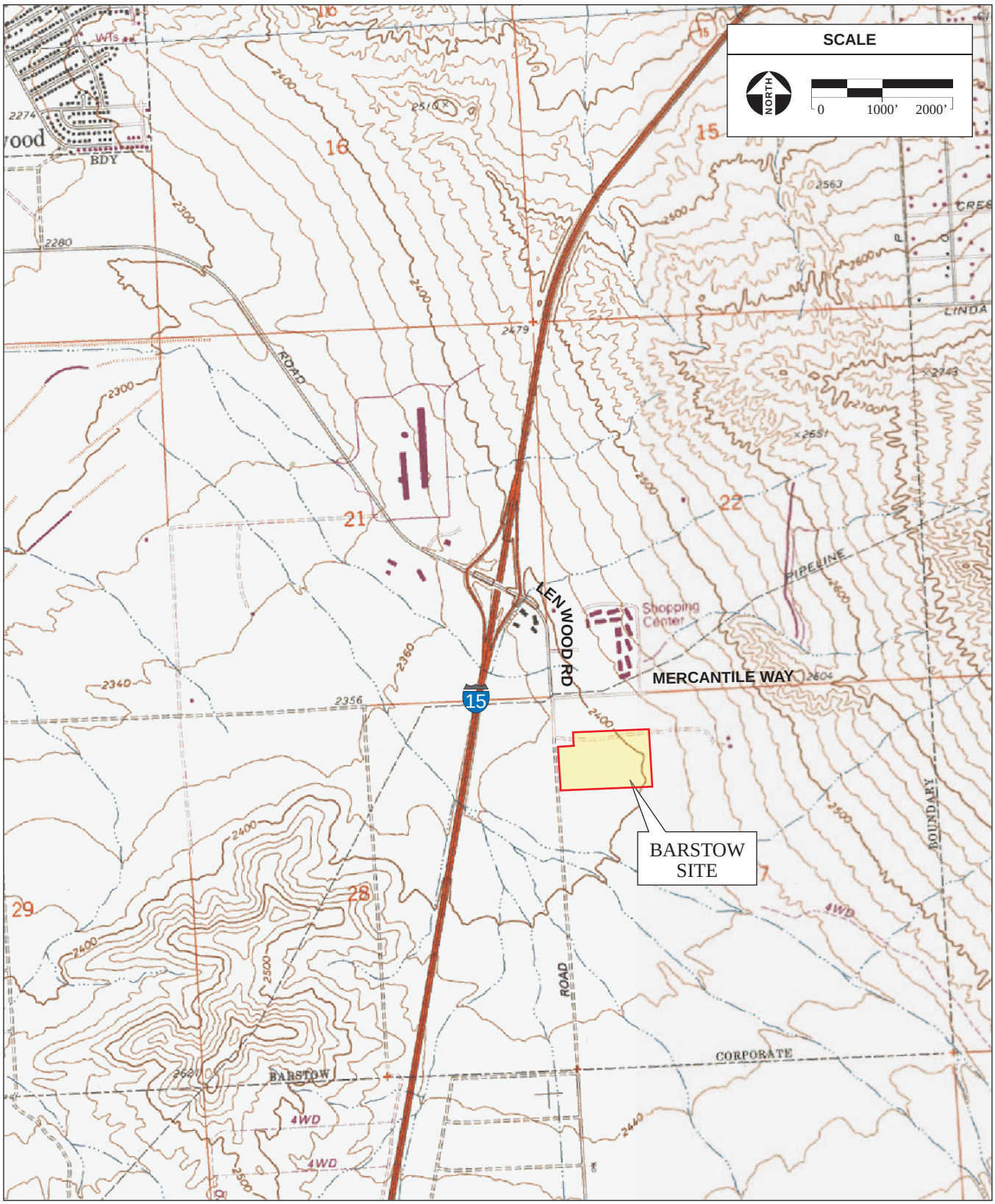
Figure 3.1-2 shows the topography of the Barstow site. Elevations on the Barstow site range from approximately 2,413 feet amsl at the eastern property line, to approximately 2,392 feet amsl at the western property line. The mean slope is 1.5 percent, with the rise distributed more densely over the eastern portion of the run.

Soils and Geology

As shown on **Figure 3.1-3**, the Barstow site is comprised of Cajon Sand soils. The Cajon series generally consist of mixed thermic, sandy entisols, or torripsamments. These are deep, excessively drained soils

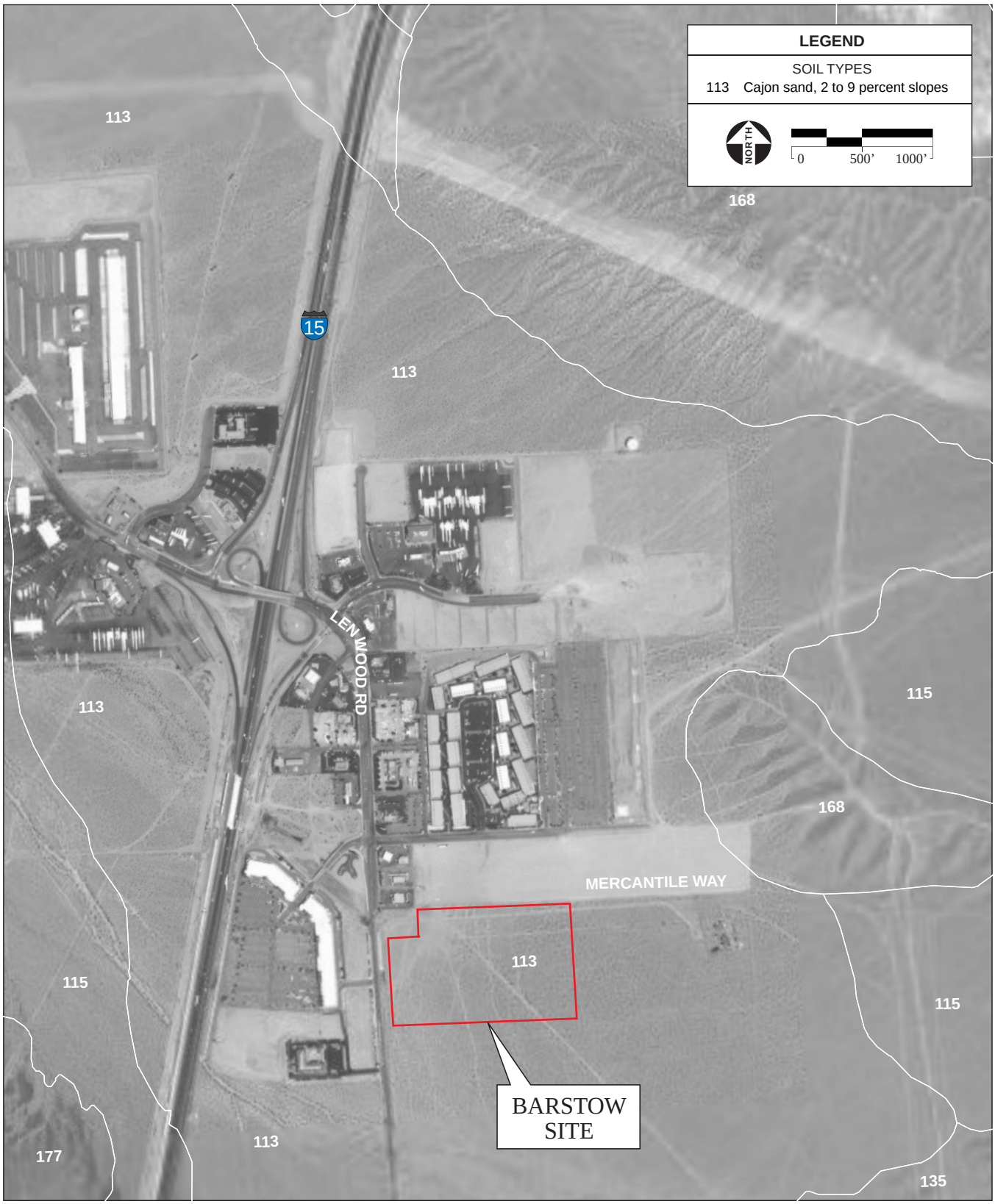
SOURCE: California Geological Survey, 2002; AES, 2011

Figure 3.1-1
California Geomorphic Provinces



SOURCE: "Barstow, CA" USGS 7.5 Minute Topographic Quadrangle, Section 27, T9N, R2W, San Bernadino Baseline & Meridian; AES, 2011

Figure 3.1-2
Barstow Site Topography



SOURCE: USDA Soil Conservation Service, 1975-1978; GoogleEarth, 2006; AES, 2011

Figure 3.1-3
Barstow Site Soils

found primarily on alluvial fans, and at elevations of 1,800-3,500 feet (USDA, 1986). The Barstow site's soil capability subclasses and limitations are outlined in **Table 3.1-3**. Soils on the site are not prone to expansion or corrosivity.

TABLE 3.1-3
PROJECT SOIL LIMITATIONS - BARSTOW SITE

Soils	Depth	Permeability	Drainage	Erosion	Shrink/ Swell	Runoff	Capability Sub-class
Cajon Sand 2-9% slope	60 Inches	Rapid	Excessively Drained	Slight to moderate	Low	Slow	IIIe-1
Source: USDA, 1986.							

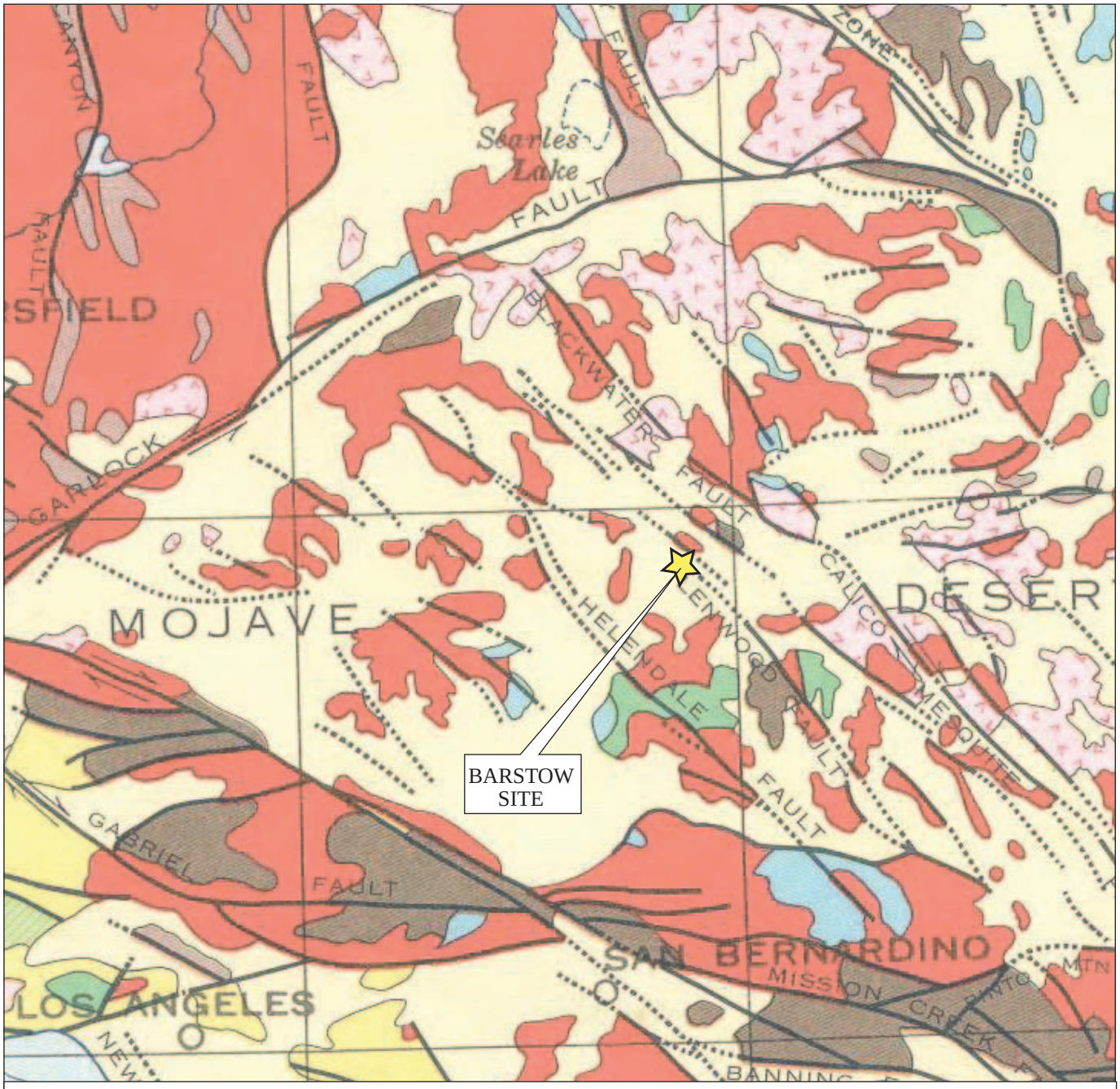
Seismicity

The Barstow site is located in a seismically active region (**Figure 3.1-4**). The Lenwood Fault, which runs diagonally from northwest to southeast across the City of Barstow, is a right-lateral strike-slip fault that is somewhat segmented. Although it has not produced any historic earthquakes, its Holocene displacement (less than 11,000 years) qualifies it as a "sufficiently active" fault, capable of producing a 7.5 magnitude earthquake. While the Lenwood Fault is on the California Department of Conservation's list of Alquist-Priolo Fault Zones, the Barstow site is a sufficient distance (greater than 500 feet) from the fault and is therefore not considered to be within an Alquist-Priolo Fault Zone. There are no documented faults directly beneath the Barstow site (USGS and CGS, 2006).

The U.S. Geological Survey (USGS) has mapped the region by maximum peak acceleration based on historic groundshaking events and regional faulting. **Figure 3.1-5** shows that the Barstow site is located within a region having a 10 percent chance of exceeding 0.25g acceleration in a seismic event, to which **Table 3.1-2** assigns a corresponding MMI Intensity Value of VIII. At this level of acceleration, damage is slight in specially designed structures and considerable in ordinary substantial buildings, with partial collapse (Bolt, 1988). Peak ground accelerations associated with faults in the vicinity of the Barstow site are summarized in **Table 3.1-4**.

TABLE 3.1-4
DETERMINISTIC SEISMIC CHARACTERISTICS – BARSTOW SITE

Fault Name	Approximate Distance From Site (miles)	Maximum Considered Earthquake Moment Magnitude (Mw)	Peak Horizontal Ground Acceleration (g)
Lenwood	1.0	7.5	0.29
Camp Rock	10	6.8	0.29
Calico	13	7.3	0.29
Helendale	15	7.3	0.29
Source: USGS and CGS, 2006			



LEGEND

SEDIMENTARY AND VOLCANIC ROCKS

- Cenzoic nonmarine (continental) sedimentary rocks and alluvial deposits
- Cenzoic marine sedimentary rocks
- Cenzoic volcanic rocks
- Mesozoic sedimentary and volcanic rocks older than the Nevaden oregeny, in places strongly metamorphosed.
- Pre-Cenzoic metamorphic rocks of unknown age.
- Late Mesozoic (latest Jurassic and Cretaceous) shelf and slope sedimentary rocks
- Late Mesozoic (latest Jurassic and Cretaceous) eugeosynclinal rocks of the Franciscan Formation
- Paleozoic sedimentary and volcanic rocks; in places strongly metamorphosed; includes some rocks of Triassic age in Klamath Mountains; includes some late Precambrian sedimentary rocks in Great Basin
- Precambrian rocks of all types including coarse-grained intrusives

INTRUSIVE IGNEOUS ROCKS

- Granitic rocks chiefly of Mesozoic age
- Ultramafic rocks chiefly of Mesozoic age

Contact

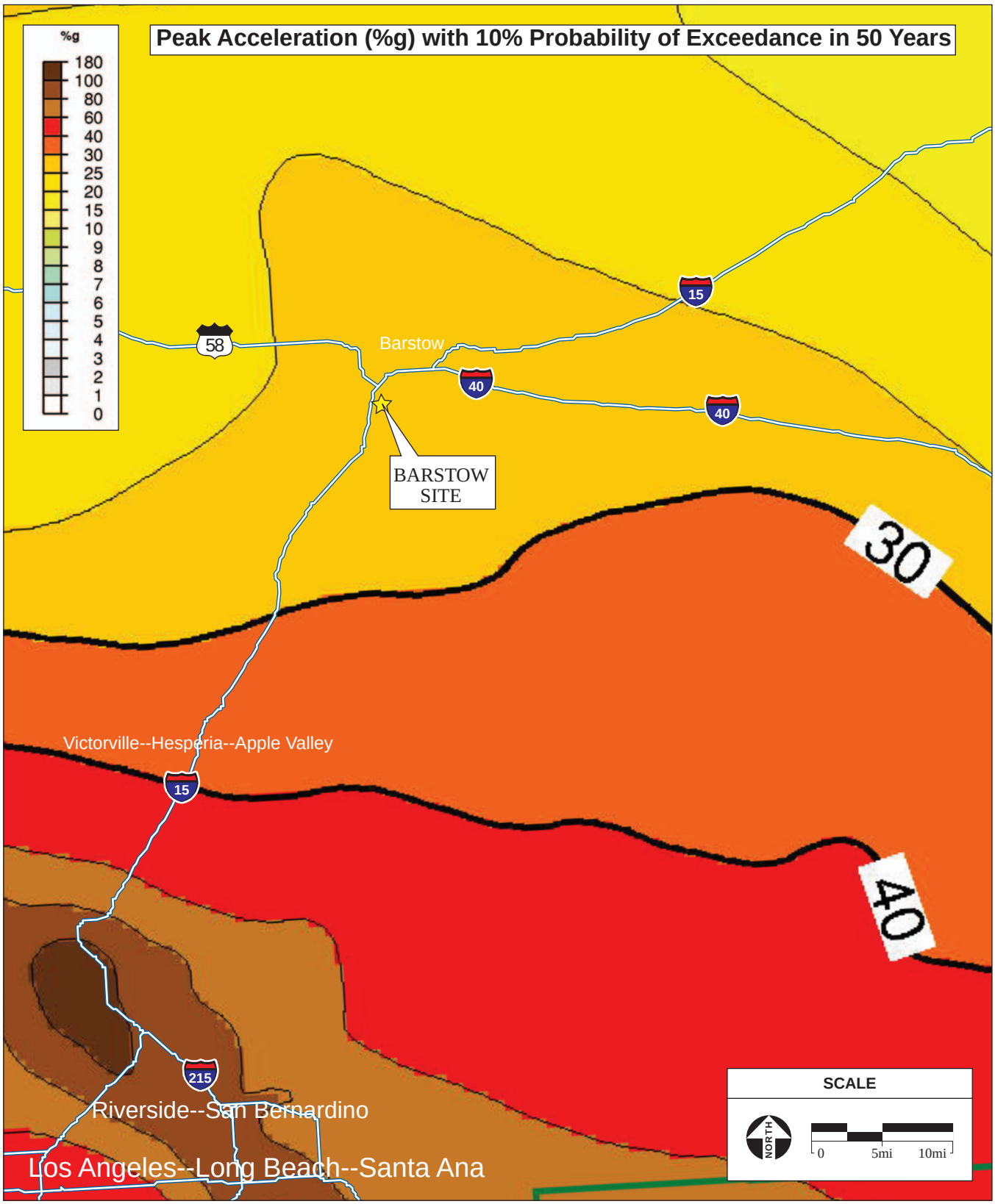
Fault, dotted where concealed; includes low-angle faults; arrows indicate direction of relative movement on strike-slip faults

NORTH

0 10mi 20mi

SOURCE: USGS and California Division of Mines and Geology, 1966; AES, 2011

Figure 3.1-4
Barstow Site Geology



SOURCE: USGS National Seismic Mapping Project, 1996; ESRI Data, 2004; AES, 2011

Figure 3.1-5
Barstow Site Earthquake Susceptibility

Liquefaction

On average, groundwater in the vicinity of the Barstow site is at a level of 230.7 feet below ground surface; therefore, there is no substantial risk of liquefaction in the project area (DWR, 2008).

Lateral Spreading

Because there is no substantial risk of liquefaction in the project area, it is also unlikely that lateral spreading will occur.

Mineral Resources

Common rock types and their associated mineral assemblages common to San Bernardino are as follows:

- Regional Late Mesozoic eugeosynclinal rocks of the Franciscan Formation
- Late Mesozoic shelf and slope sedimentary rocks
- Cenozoic marine sedimentary rocks
- Cenozoic nonmarine sedimentary rocks and alluvial deposits
- Cenozoic volcanic rocks, granitic rocks chiefly of Mesozoic age
- Ultramafic rocks chiefly of Mesozoic age

The rock types described above support regional operations of limited mining facilities for the production of granitic and sandstone gravel (USGS, 1960).

The City of Barstow General Plan (1997 Update) generally indicates the nearby Mojave River Corridor as a significant mineral resource, based on the mineral land classification maps of the California Division of Mines and Geology. This corridor is both an existing and a potential source of concrete aggregate deposits. No mining activity takes place on the Barstow site.

3.1.3 LOS COYOTES SITE

Geological Setting

The Los Coyotes site lies within North San Diego County, which is situated in the Peninsular Ranges Geomorphic Province (**Figure 3.1-1**). The Peninsular Ranges geomorphic province extends south from the Transverse Ranges, passing through the Los Angeles Basin and continuing 775 miles south of the U.S.-Mexico border. The Peninsular Ranges are bounded on the west by the Transverse Ranges and on the east by the Colorado Desert and include Orange County, the San Jacinto Mountains, and the Coachella Valley in the central portion of Riverside County. The ranges are comprised of a series of northwest-southeast trending mountains that are separated by several active faults, including the San Jacinto and Elsinore Fault zones.

Topography

The Los Coyotes site ranges in elevation from approximately 4,500 feet amsl on its southwestern corner, to approximately 4,585 feet amsl on its northeastern corner. **Figure 3.1-6** shows the topography of the Los Coyotes site. The Los Coyotes site is sloped between 3 and 6 percent from the northeastern corner to the southwestern corner, and is adjacent to hills exceeding 500 feet amsl in places. The San Ysidro Creek flows through the site along the western boundary. The surrounding topography is extremely mountainous, with slopes exceeding 17% on more than 75% of the reservation.

Soils and Geology

The Los Coyotes site consists of Mottsville series loamy coarse sand (MvC and MvD) and loamy alluvial sand (Lu) (**Figure 3.1-7**). Mottsville series soils are defined as consisting of excessively drained, very deep, loamy coarse sands that in places were formed in sandy sediments either transported from or weathered in place from granitic rock. Loamy alluvial sands on site are generally associated with fluvial deposition, such as seasonal swelling of the San Ysidro Creek (USDA, 1979). Soils on the site are not prone to expansion or corrosivity.

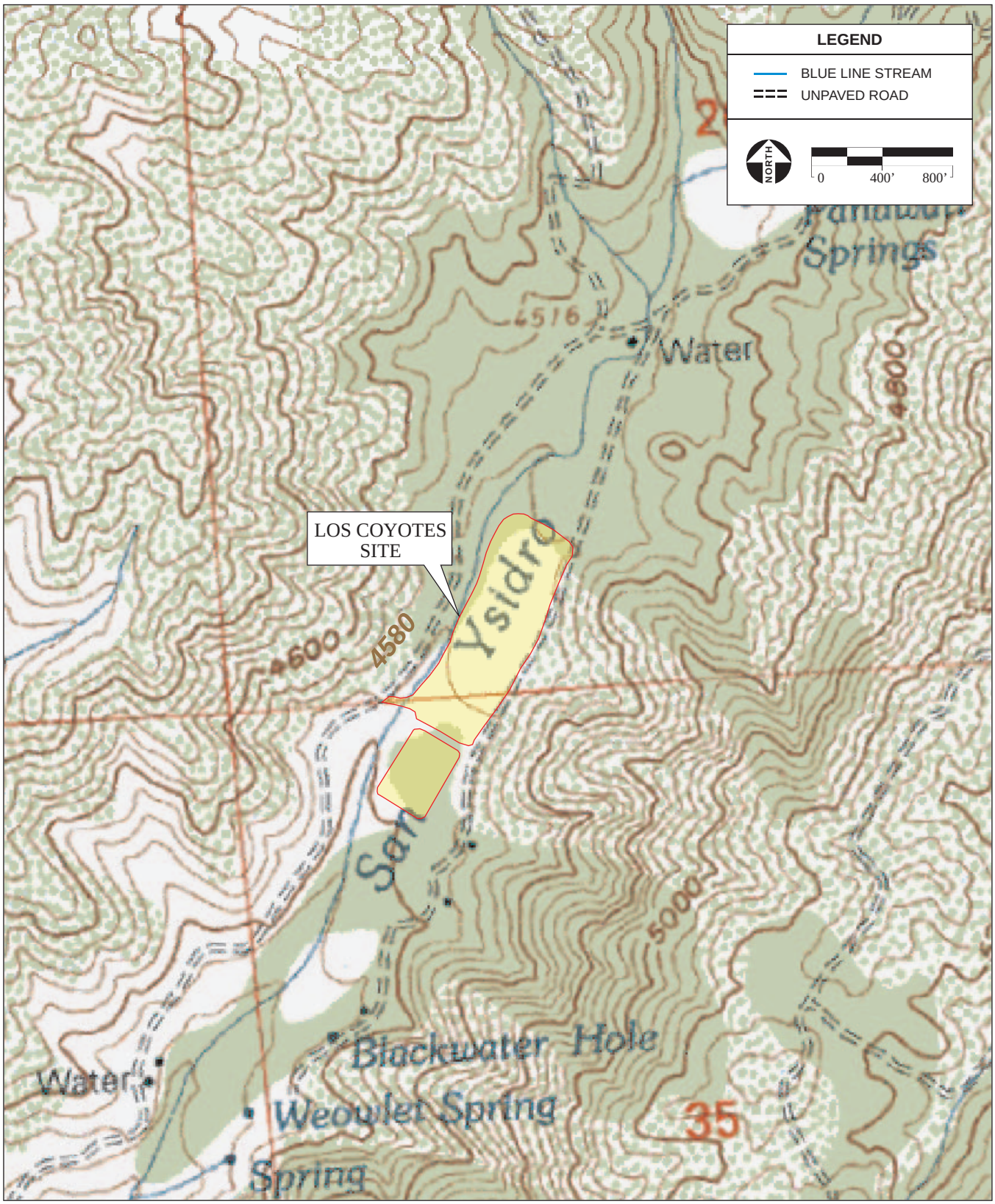
The granitic origin of these soils correlates with the surrounding geological formation process, which began in the Jurassic and Late Cretaceous eras, wherein a series of volcanic islands off the coastline of today's San Diego region were associated with the formation of a granitic and gabbroic batholith beneath the region. Los Coyotes site soil capability subclasses and limitations are outlined in **Table 3.1-5**.

TABLE 3.1-5
PROJECT SOIL LIMITATIONS – LOS COYOTES SITE

Soils	Depth	Permeability	Drainage	Erosion	Shrink/ Swell	Runoff	Capability Sub-class
Mottsville Loamy Coarse Sand (MvC) 2-9% slope	60 Inches	Very Rapid	Excessively Drained	Slight to Moderate	Low	Slow to Medium	IVsc-4
Mottsville Loamy Coarse Sand (MvD) 9-15% slope	60 Inches	Very Rapid	Excessively Drained	Moderate	Low	Medium	IVsc-4
Loamy Alluvial Sand (Lu) 0-5% slope	60 Inches	Moderate	Poorly Drained	Slight	Low	Slow	IIw-2
Source: USDA, 1979.							

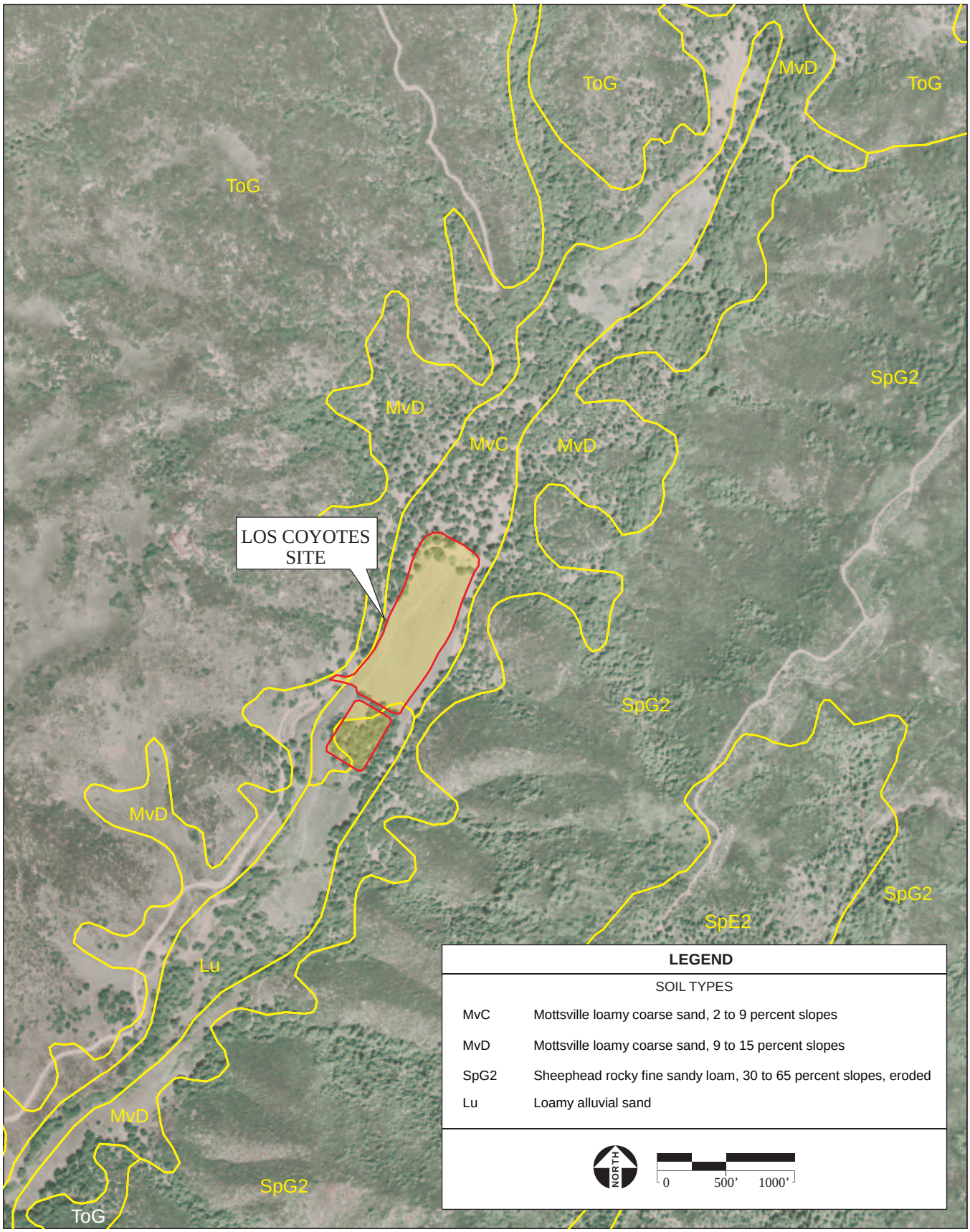
Seismicity

The Los Coyotes site is located in a seismically active region. The Elsinore Fault and the Coyote Creek Fault are parallel to one another and run diagonally from northwest to southeast across San Diego County. The only mapped fault that crosses the Los Coyotes Reservation is the Hot Springs fault (USGS and CGS, 2006). **Figure 3.1-8** shows the geology and faulting in the region of the Los Coyotes site.



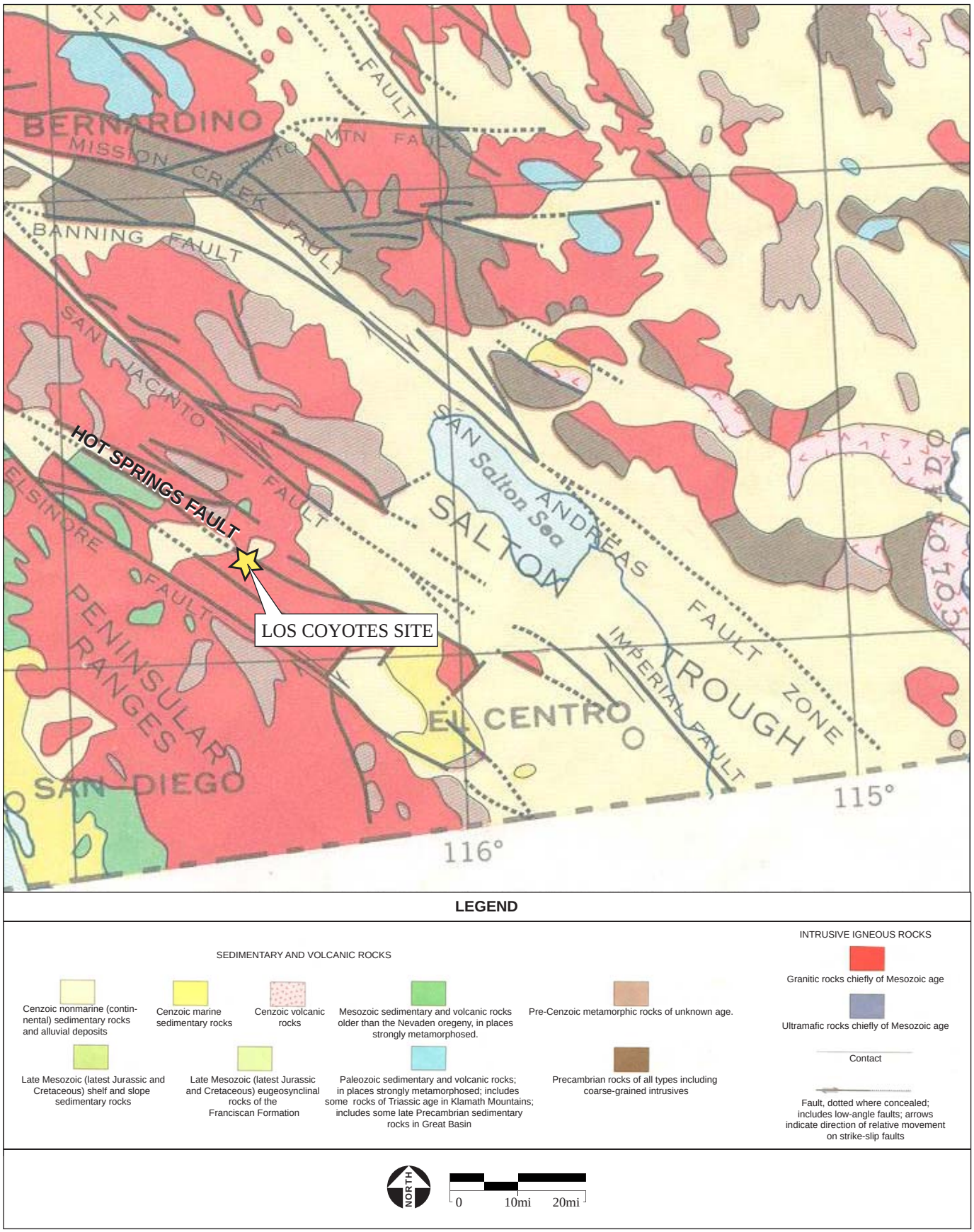
SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 3.1-6
Los Coyotes Site Topography



SOURCE: USGS Aerial Photo dated 4/1/04; USDA Soil Survey of San Diego County; AES, 2011

Figure 3.1-7
Los Coyotes Site Soils



SOURCE: USGS and California Division of Mines and Geology, 1966; AES, 2011

Figure 3.1-8
Los Coyotes Site Geology

The site is located within a region having a potential peak acceleration of 0.6g, with a 10 percent chance of exceedance in 50 years, as shown in **Figure 3.1-9**. **Table 3.1-2**, above, indexes the type of damage to be anticipated in such an event. At this level of acceleration, some well-built wooden structures would be destroyed; most masonry and frame structures would be destroyed along with their foundations; and the ground would be badly cracked. Other damage includes the bending of railways and considerable landslides from riverbanks and steep slopes. Sand and mud would be shifted and water splashed over its banks. Peak ground accelerations associated with faults in the vicinity of the Los Coyotes site are summarized in **Table 3.1-6**.

Liquefaction

The potential for liquefaction in San Diego County is limited to the lower San Dieguito River Valley or the portion of Borrego Valley near Borrego Sink (San Diego County, 1979). Neither of these locations is in the vicinity of the Los Coyotes site. Furthermore, the soils on the site are coarse to loamy, not fine or silty. Liquefaction on this site is unlikely.

TABLE 3.1-6
DETERMINISTIC SEISMIC CHARACTERISTICS – LOS COYOTES SITE

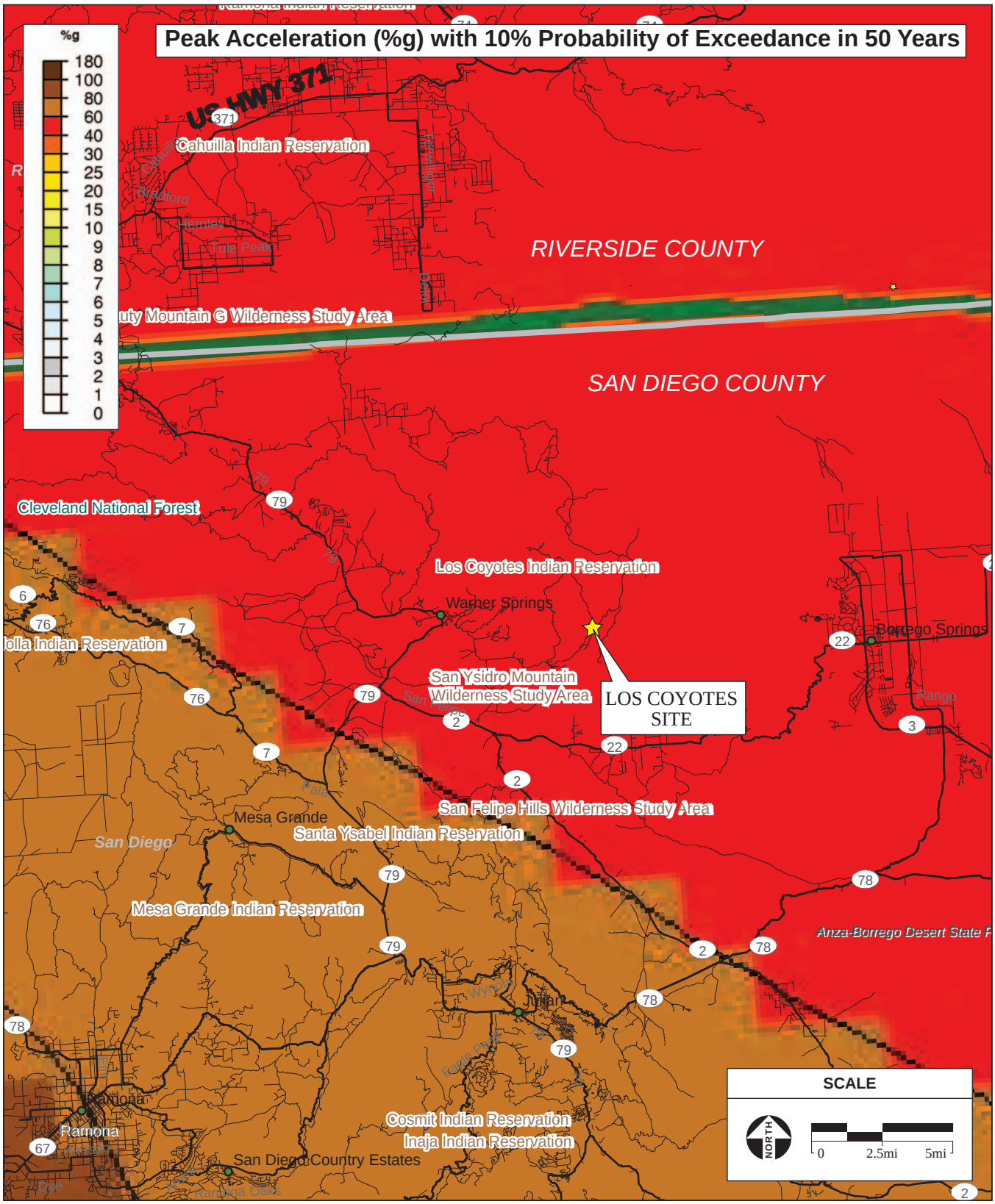
Fault Name	Approximate Distance From Site (miles)	Maximum Considered Earthquake Moment Magnitude (Mw)	Peak Horizontal Ground Acceleration (g)
Hot Springs	0.25	6.1	0.60
Coyote Creek	12.0	7.3	0.78
Elsinore	12.5	7.3	0.76
Source: USGS and CGS, 2006			

Lateral Spreading

Lateral spreading is commonly associated with liquefaction and is not likely to occur on the Los Coyotes site.

Mineral Resources

Rock types in San Diego County consist of Cretaceous Age granitic rocks, including diorites, gabbros and quartz diorites; Mesozoic Age metamorphic rocks such as schist, gneiss, and marble; Tertiary Age flat-lying, consolidated sedimentary rocks, consisting of sandstone, conglomerate, and mudstone; and recent alluvium, including sand, gravel, silt, and clay (San Diego County, 1979).



SOURCE: USGS National Seismic Mapping Project, 1996; ESRI Data, 2004; AES, 2011

Figure 3.1-9

Los Coyotes Site Earthquake Susceptibility

3.2 WATER RESOURCES

This section provides a description of surface water and groundwater features including watersheds, drainage, flooding, and water quality in the vicinity of the Barstow and Los Coyotes sites. Water resources designated as Waters of the U.S. are discussed in **Section 3.4**. **Section 3.8** describes existing water supply facilities and regulatory requirements for wastewater treatment and disposal. The general and site-specific profiles of water resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.2.1 BARSTOW SITE

Surface Water

The Barstow site is located in the Lahontan Basin, which for planning purposes is separated into north and south regions. The site lies within the South Lahontan Basin, which includes three major surface water systems: the Mono Lake, Owens River, and Mojave River watersheds. Locally, the project area is within the Middle Mojave hydrological unit of the Mojave River watershed, as shown in **Figure 3.2-1**. The watershed covers approximately 4,500 square miles and is bounded by the San Bernardino and San Gabriel Mountains to the south, Afton Canyon to the northeast, the Lucerne Valley to the east, and Antelope Valley to the west. The Mojave River Channel, the primary hydrologic feature in the water shed is approximately 120 miles long. The headwaters of the Mojave River are located in the San Bernardino Mountains and the river terminates at Silver Dry Lake near the community of Baker.

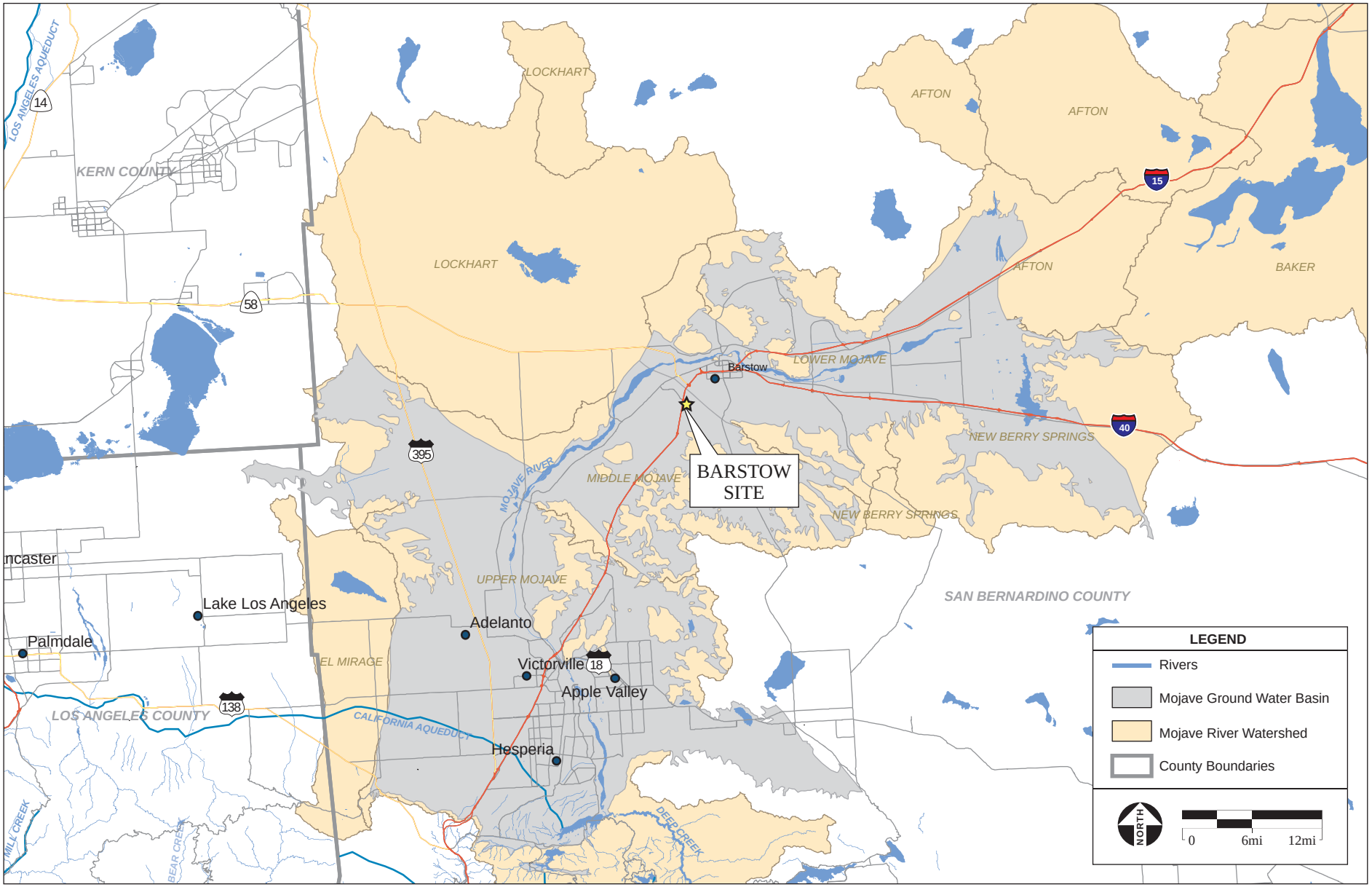
Precipitation rates in Barstow average approximately 4.4 inches per year (WRCC, 2008). In the Mojave Desert Region most of the rainfall occurs between November and April. A summer thunderstorm season occurs from July to September when violent and heavy rainstorms are possible. The project site is located approximately 4 miles from of the Mojave River (**Figure 3.2-1**). There are no significant surface water features on the Barstow project site or adjacent parcels.

Drainage

Stormwater runoff from the project site is generally characterized as sheet flow with a convergence towards the northwest corner of the site. Stormwater generated on the Barstow site discharges to Lenwood Wash, an off-site concrete drainage ditch along Lenwood Road. The concrete ditch traverses along the eastern shoulder of Lenwood Road to the south for approximately 200 feet until passing over a rock-protected section and converting to an earthen ditch. The earthen portion of the drainage ditch traverses along the road for approximately 150 feet until coming to a low section where it flows under the road to the west through a culvert (Questa, 2007).

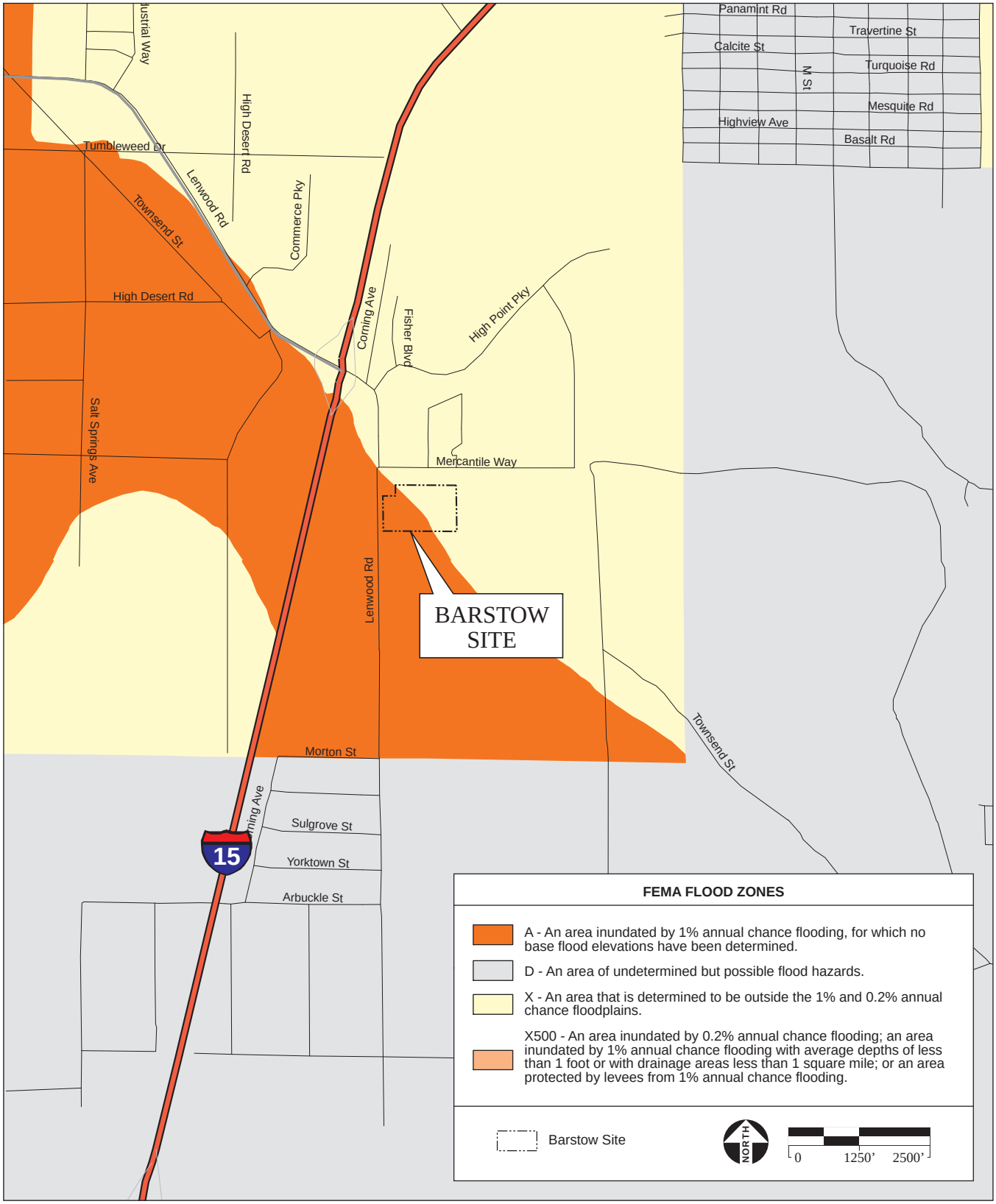
Floodplain

The southwest portion of the Barstow site lies within the Mojave River 100-year flood plain (**Figure 3.2-2**). This portion represents approximately 10.5 acres of the site that is designated Zone A0 (Depth 2). This area is defined as an area that could be inundated by a 100-year flood event with depths from 1 to 3 feet of sheet flow, for which no base flood elevations have been determined. The remaining portion of



SOURCE: ESRI Data, 2005; AES, 2011

Figure 3.2-1
Barstow Site Water Resources



SOURCE: FEMA Q3 Flood Data, 1996; AES, 2011

Figure 3.2-2
Barstow Site Flood Zone Map

the site is designated Zone X, which represents areas determined to be outside of the 500-year floodplain (FEMA, 2008).

Surface Water Quality

The Clean Water Act (CWA) is the major federal legislation governing water quality and applies to both point and non-point sources of pollution. Point sources pollution can be traced back to a single fixed discharge point such as a pipe, while non-point source pollution is generated without a fixed discharge point, such as chemicals entrained within stormwater runoff. The goals of the CWA include eliminating harmful discharges of pollution and providing water quality standards, criteria, and guidelines. Section 303(d) of the CWA requires states to identify impaired water bodies and develop total maximum daily loads (TMDLs) for the contaminant(s) of concern. The State Water Resources Control Board (SWRCB) implements the CWA in California under the delegation and oversight of the United States Environmental Protection Agency (USEPA). However, USEPA retains jurisdiction over discharges to waters on tribal trust land.

The Porter-Cologne Water Quality Control Act provides the basis for surface water and groundwater quality regulation within California. The act established the authority of the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). The act requires the State, through the SWRCB and the RWQCBs, to designate beneficial uses of surface waters and groundwaters, and specify water quality objectives designed to protect those uses. These water quality objectives are presented in the Regional Water Quality Control Plans (Basin Plans).

The Barstow site is currently under the jurisdiction of the Lahontan Regional Water Quality Control Board (LRWQCB). In accordance with Section 303(d) of the CWA, the LRWQCB submitted identified impaired water bodies in the basin to the SRWCB for the 2006 update of the 303(d) list. No water bodies associated with the Barstow site were identified as impaired on the list. In accordance with the CWA and the Porter-Cologne Water Quality Control Act, the LRWQCB has designated beneficial uses of the Mojave River in the LRWQCB Basin Plan. The beneficial uses are identified as: groundwater recharge, municipal and domestic supply, agricultural supply, cold freshwater habitat, commercial and sport fishing, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat. In addition, the LRWQCB Basin Plan identifies water quality objectives to sustain the long-term prevalence of beneficial uses of Mojave River water, as shown in **Table 3.2-1**.

TABLE 3.2-1
SURFACE WATER QUALITY OBJECTIVES FOR THE MOJAVE RIVER BASIN

Parameter	Objective (mg/L)
Total Dissolved Solids (TDS)	445
Nitrate (NO_3)	6

Notes: [1] Mojave River (at Barstow).
Source: LRWQCB, 2005.

Water quality concerns associated with stormwater in desert communities are not as well defined as in non-desert communities. The typical surface water concerns associated with stormwater are not as

directly related to the state of the watershed because the Mojave River system is dominated by groundwater rather than surface water. However, constituents such as oil and grease, asbestos, pesticides, and herbicides continue to present concerns in desert communities as in other areas. Stormwater currently generated on the undeveloped project site is not expected to contain high levels of these contaminants.

Groundwater

The site lies within the 330 square mile Middle Mojave River Valley Groundwater Basin (Middle Basin), which is part of the larger, 1400-square-mile Mojave River Valley Groundwater Basin (**Figure 3.2-1**). The Middle Basin is bounded on the north by a combination of surface and subsurface divides, the Helendale fault, and the contact between Quaternary alluvium and consolidated basement rocks of the Kramer Hills and Iron Mountain.

Water in the Mojave River Groundwater Basin is supplied by two interconnected aquifers: a Floodplain Aquifer and the Regional Aquifer (**Figure 3.2-3**). The Floodplain Aquifer consists of sand and gravel deposits, with an average depth of 200 feet. A monitoring well located on adjacent property north of the project site identified an average groundwater elevation of 230.7 feet below ground surface (2005-2008) (DWR, 2008). This aquifer is restricted to an area within approximately 1 mile of the active Mojave River channel.

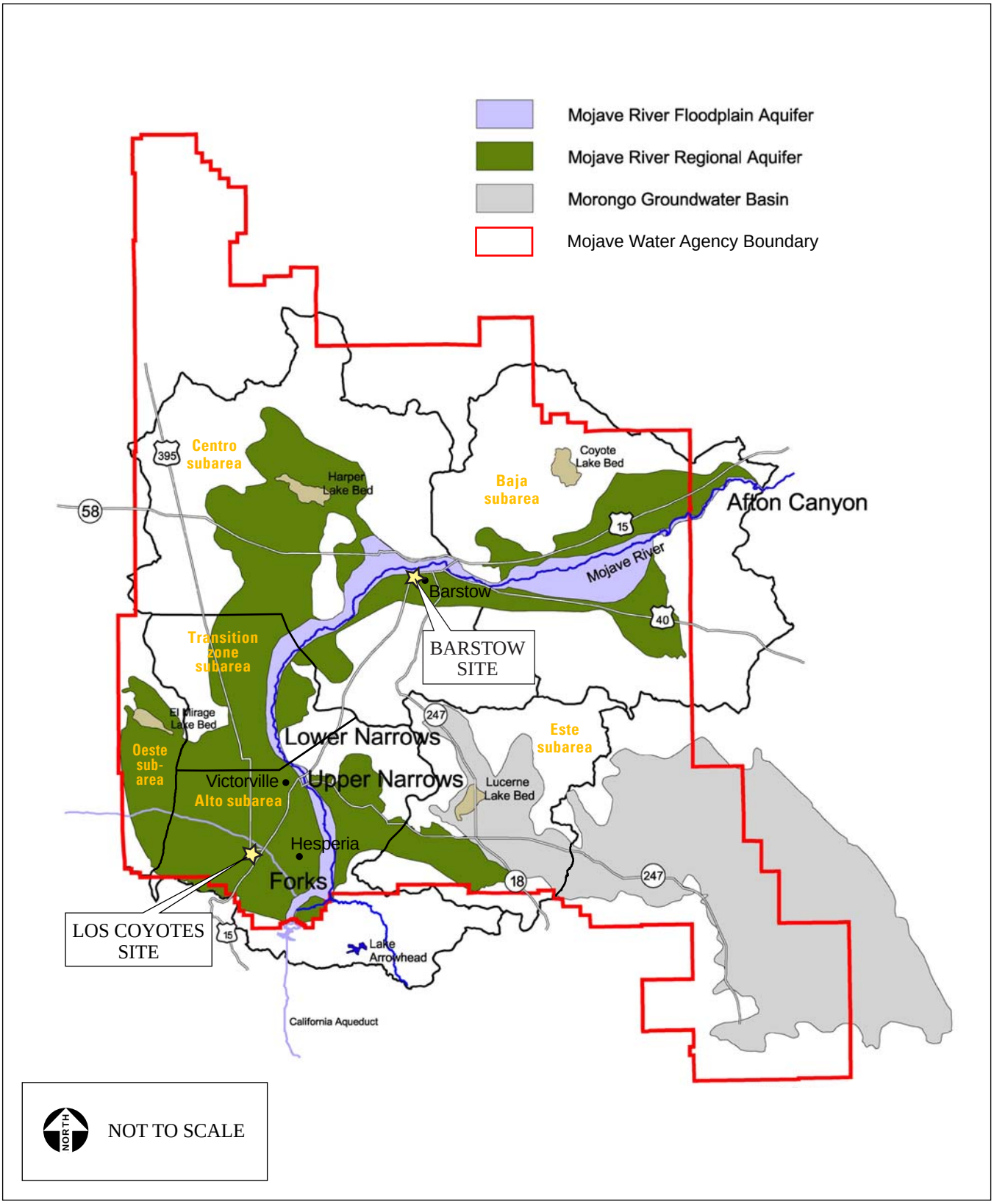
Wells in this aquifer yield from 100 to 4,000 gallons per minute (gpm), and the average well yield is approximately 480 gpm. The Regional Aquifer surrounds the Floodplain Aquifer and consists of silt, sand, and clay deposits that average approximately 300 feet deep. Well yields from the Regional Aquifer are generally less than from the Floodplain Aquifer (DWR, 2003).

Groundwater levels for wells in the Floodplain Aquifer near the Mojave River tend to vary with rainfall and runoff amounts, whereas groundwater levels in the Regional Aquifer do not show significant changes due to local rainfall. The general trend in the basin is for declining groundwater levels, particularly in the Regional Aquifer. However, increased precipitation in the 1990s resulted in increased infiltration of runoff and consequential increase in the Floodplain Aquifer groundwater level (DWR, 2003).

In the Mojave Basin natural recharge typically occurs from direct precipitation, ephemeral stream flow, infrequent surface flow of the Mojave River, and underflow of the Mojave River into the basin from the southwest. Additionally, when the Mojave River is flowing a large sporadic recharge occurs. The remainder of the total recharge comes from treated wastewater effluent, septic tank effluent, the California State Water Project (SWP), and irrigation waters that percolate into the ground (DWR, 2003).

Groundwater Supply

Residents overlying the Mojave Basin rely almost entirely on groundwater for their water supply. Reliance on groundwater has resulted in overdraft conditions since the early 1950s. Overdraft occurs when groundwater discharge (natural discharge plus pumpage) exceeds recharge, resulting in a net



SOURCE: Saracino Kirby Snow, June 2002; AES, 2011

Figure 3.2-3
Mojave River Groundwater Aquifers

reduction in groundwater stored in the aquifers. The average annual net water supply for the Mojave Basin Area is estimated to be 63,400 acre feet per annum (afa) for the period 1931-2001. In the year 2000, 34,900 acre feet (af) was used for agricultural purposes and 70,300 af was used for municipal uses for a total of 105,200 af of consumptive use in the Mojave Basin Area. This resulted in a deficit of 41,800 af for the year 2000. Over the past 50 years, records from three wells indicate that overdraft has resulted in declined groundwater levels of the Regional Aquifer from 50 to 100 feet, and reduced regional storage by nearly two million af (ESA, 2004).

In 1959 the Mojave Water Agency (MWA) was formed by an act of the legislature and given broad powers to do "any and every act necessary… so that water may be available for any present or future… uses of the lands or inhabitants of the agency" (MWA, 2009). To mitigate the effects of overdraft in the Mojave River Groundwater Basin, the MWA is using imported SWP water for artificial recharge by surface spreading. The MWA contract with the SWP allows an annual entitlement of 50,800 af (1 af = 325,872 gallons). Later, MWA purchased an additional 25,000 af of entitlement from Berrenda Mesa Water District to bring its total annual entitlement to 75,800 af (MWA, 2004).

For management purposes, the MWA split the Mojave River watershed and associated groundwater basins into five separate "subareas." The boundaries of the five subareas (Oeste, Este, Alto, Centro, and Baja) were determined based on hydrologic divisions in previous studies, evolving over time based on a combination of hydrologic, geologic, engineering, and political considerations. The project site is located in the Centro Subarea (**Figure 3.2-3)**. Limits have been set on the amount of groundwater production that can occur in each subarea without incurring an obligation to buy imported water. Subareas upstream have an annual obligation to subareas downstream based on long-term averages between 1930 and 1990. The Centro subarea is the only subarea in the Mojave River watershed that has experienced surplus in the water budget. In 2000, the Centro subarea exhibited a surplus in the water balance of 1,200 acre-feet (ESA, 2004).

Groundwater Quality

Table 3.2-2 presents groundwater quality objectives for the Mojave River at Barstow from the LRWQCB Basin Plan. Historic discharges of industrial, commercial, and domestic wastewater have degraded groundwater quality in the Barstow area.

Degradation of groundwater quality has been caused by several constituents of concern, including petroleum hydrocarbons, phenols, methylene blue active substances (surfactants), and total dissolved solids (TDS). Several domestic wells were impacted, and their use was discontinued. Salts and nitrates have leached into the local groundwater from the Lenwood landfill in the lower portion of the Middle Mojave River Groundwater Basin. Irrigation with effluent from the Barstow wastewater reclamation facility, along with naturally occurring nitrates and salts, may also be affecting the basin (DWR, 2004b).

Since approximately 1990, the LRWQCB and the City of Barstow have worked together to identify and eliminate sources of elevated TDS that enter the City's wastewater treatment plant. Through an aggressive source control program, the City has reduced the concentration of TDS in its effluent from greater than 1000 mg/L to typically less than 800 mg/L (LRWQCB, 2005).

TABLE 3.2-2
GROUNDWATER QUALITY OBJECTIVES FOR THE MOJAVE RIVER BASIN

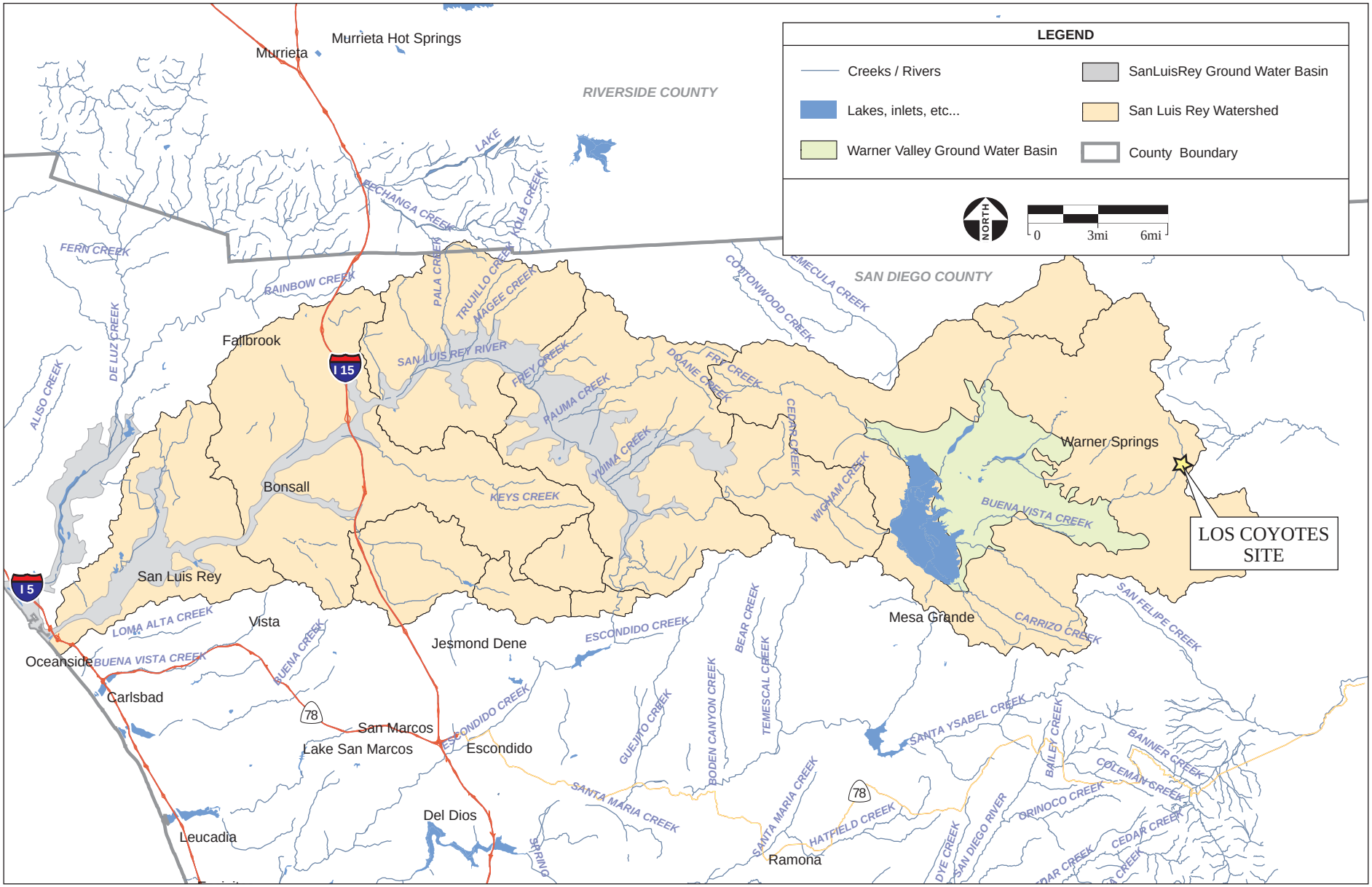
Constituent	Water Quality Objective
Total Dissolved Solids (TDS)	445 (mg/L, maximum)
Nitrate (NO_3)	6 (mg/L, maximum)
Bacteria, Coliform	In groundwaters designated as municipal (MUN), the median concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.
Chemical Constituents	MUN groundwaters shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations. Waters designated as agriculture (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes). Groundwaters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
Radioactivity	MUN groundwaters shall not contain concentrations of radionuclides in excess of the limits specified in Title 22 of the California Code of Regulations.
Tastes and Odors	Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For MUN groundwaters, at a minimum, concentrations shall not exceed adopted secondary maximum contaminant levels of Title 22 of the California Code of Regulations.
Source: LRWQCB, 2005.	

3.2.2 LOS COYOTES SITE

Two-thirds of the Los Coyotes Reservation watershed lies within the San Luis Rey watershed (**Figure 3.2-4)**, including the project site. One-third of the Reservation lies within the Anza-Borrego watershed. The Reservation is located primarily within the San Diego groundwater Basin, with a small portion located in the Colorado River groundwater Basin.

The San Diego Region has thirteen principal stream systems originating in the western highlands that flow to the Pacific Ocean. Surface water impoundments capture flow from nearly all of the region's major streams. The San Luis Rey River originates at the crest of the coast range in northern San Diego County and flows approximately 16 miles to Lake Henshaw, downstream of the Los Coyotes Reservation. The lake flow eventually discharges to the Pacific Ocean at the City of Oceanside, California.

Most rainfall at the Reservation occurs from December to March. The average annual precipitation in the immediate vicinity of the Reservation is approximately 16 inches. A decrease to 10 inches annually



SOURCE: ESRI Data, 2005; AES, 2011

Figure 3.2-4
Los Coyotes Site Water Resources

occurs on the Reservation east of Hot Springs Mountain because of the rain shadow effect (precipitation decreasing on the leeward side of a mountain).

Drainage

The Reservation contains approximately 62 miles of streams, including San Ysidro Creek, Cougar Canyon Creek, Borrego Palm Canyon Creek, and their tributaries. The San Ysidro Creek and Middle Fork of Borrego Palm Canyon Creek are perennial. Flow in most streams within the Reservation is intermittent, consisting of rainfall runoff or groundwater discharge during spring flow. The Los Coyotes site is located adjacent to San Ysidro Creek, which drains to Buena Vista Creek and then to Lake Henshaw. Downstream of Lake Henshaw, the river flows through a narrow canyon along the base of Palomar Mountain until it is diverted to the Escondido Canal, which conveys water to Lake Wohlford for municipal and irrigation uses. The project site slopes southwest between three to six percent, creating a mild cross slope providing drainage from the site to San Ysidro Creek.

Floodplain

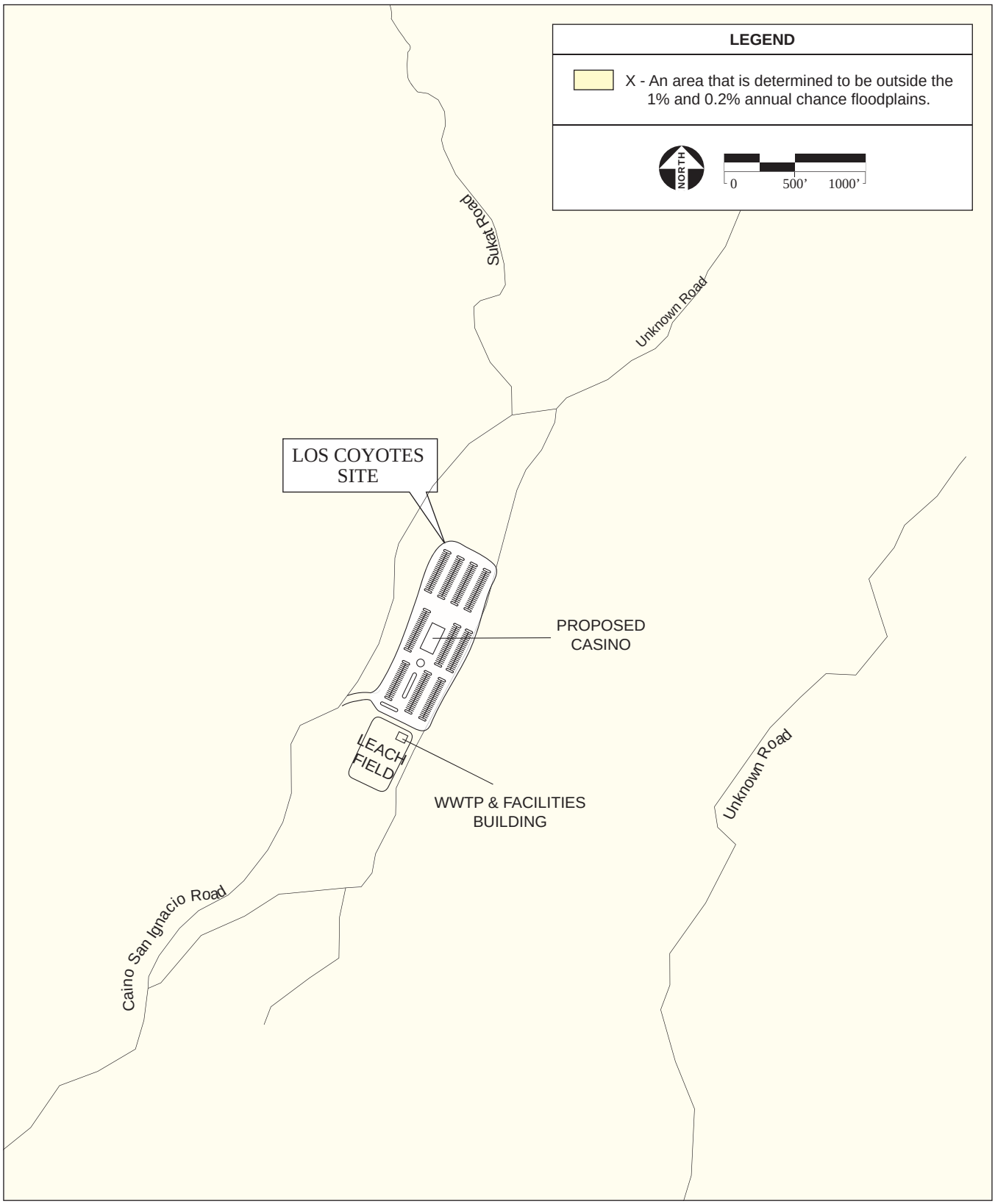
The Los Coyotes site is not located within a designated 100-year floodplain (FEMA, 2006). On the FEMA Flood Zone Map (**Figure 3.2-5**) the site is labeled Zone D, which represents areas for which flood hazards are undetermined.

Surface Water Quality

There are no water bodies within the vicinity of the project site that are listed on the 2006 state impaired water body 303(d) list. Existing or potential beneficial uses of the surface water of San Ysidro Creek within the San Luis Rey River Watershed are identified within the San Diego Regional Water Quality Control Board (SDRWQCB) Basin Plan as: municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, hydropower generation, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat. In addition, the SDRWQCB Basin Plan identifies surface water quality objectives to sustain the long-term prevalence of beneficial uses of San Diego regional water, as shown in **Table 3.2-3**. The USEPA implements CWA provisions on the Los Coyotes site, as the Bureau of Indian Affairs (BIA) holds the land in trust on behalf of the tribe.

Groundwater

The Los Coyotes site is located uphill/upriver from the Warner Valley groundwater basin (Groundwater Basin Number 9-08) (as shown in **Figure 3.2-4**). The Basin covers an area of 37.5 square miles and extends from the base of San Ysidro Creek to Buena Vista Creek and the Eastern shore of Lake Henshaw. The annual average recharge is estimated at 1.14 inches, which is equivalent to an average annual recharge rate of 2,369 af. San Diego regional drainage basins tend to be relatively small in area and have shallow groundwater.



SOURCE: ESRI Q3 Flood Data; USGS Aerial Photograph, 5/28/2002; AES, 2011

Figure 3.2-5
Los Coyotes Site Floodplain Map

TABLE 3.2-3
SURFACE WATER QUALITY OBJECTIVES FOR THE WARNER VALLEY

Parameter	Objective (mg/L)
Total Dissolved Solids (TDS)	500
Chloride (Cl)	250
Sulfate (SO_4)	250
Percent Sodium (%Na)	60
Iron (Fe)	0.3
Manganese (Mn)	0.05
Methylene Blue - Activated Substances (MBAS)	0.5
Boron (B)	0.75
Turbidity NTU	20
Color Units	20
Fluoride (F)	1
Source: SDRWQCB, 2007	

The groundwater aquifer of the Reservation consists of fractured bedrock, and alluvial materials that are generally restricted to the valleys of San Ysidro and San Ignacio Creeks. The steep topography and fractured rock aquifer of the Reservation are responsible for the occurrence of springs in the area (Springer and Anderson, 1998). The largest concentrations of springs are in the San Ysidro Creek and Borrego Palm Canyon Creek Valleys. Spring discharge is highly variable and has been documented to range from 1 to 20 gpm.

Groundwater trends have historically varied across the Warner Valley Groundwater Basin. Water levels in a well in the southeastern portion of the basin declined about 3 feet from 1912 through 1967; however, in the central portion of the basin, groundwater levels in wells declined 30 to 138 feet during the 1950s and 1960s (DWR, 2004b).

Groundwater Supply

The small alluvial valleys of San Ysidro Creek and Borrego Palm Canyon Creek are the only areas of the Reservation where significant quantities of water may be in storage. Nearly all of the local groundwater resources in the region have been intensively developed for municipal and agricultural supply purposes. Existing wells in the vicinity of the Reservation are associated with fractured igneous rock. Several private wells are used for domestic water supply, and a community well has been installed. Wells drilled into fractured igneous rock generally yield less than 5 gpm, while yields of 30 gpm may occur from wells drilled into several feet of saturated alluvium overlying fractured rock. The largest reported well yields in the vicinity of the Reservation are 100 to 500 gpm, and are drilled into alluvial material more than 50 feet thick (Springer and Anderson, 1998).

The Los Coyotes Reservation is supplied with water from several spring-fed sources and hand-dug wells that supply a community water system serving Tribal residents and the Los Coyotes tribal offices (Springer and Anderson, 1998). The community spring lies in the San Ysidro Valley and has provided a

water source for the community system for several years. The springs are also used as private water sources (Marc Anderson, Inc., 2004). The most efficient well on the Reservation is a flowing artesian well at San Ignacio, which has been determined to have the potential for the largest well yields, with a safe yield of 62 gpm and a maximum yield capacity of 500 gpm (Marc Anderson, Inc., 2004; Ballog, 1980).

Groundwater Quality

Groundwater in the Warner Valley Groundwater Basin is generally rated suitable for irrigation and domestic uses except near Warner Hot Springs, where it is rated inferior for irrigation use because of sodium content and for domestic use because of high fluoride concentrations. The groundwater is dominantly sodium bicarbonate in character, though some calcium bicarbonate water is found in the southern part of the basin. Some sulfate- and chloride-rich water is found near Warner Hot Springs in the eastern part of the basin.

Groundwater quality objectives for Warner Valley groundwater basin of the San Luis Rey Hydrological Unit have been determined by the SDRWQCB, as shown in **Table 3.2-4**.

TABLE 3.2-4
GROUNDWATER QUALITY OBJECTIVES FOR THE WARNER VALLEY

Parameter	Objective (mg/L)	Parameter	Objective (mg/L)
Total Dissolved Solids (TDS)	500	Manganese (Mn)	0.05
Chloride (Cl)	250	Methylene Blue-Activated Substances (Surfactants)	0.5
Sulfate (SO_4)	250	Boron (B)	0.75
Percent Sodium (%Na)	60	Turbidity NTU	5
Nitrate (NO_3)	5	Color Units	15
Iron (Fe)	0.3	Fluoride (F)	1
Source: SDRWQCB, 2007			

3.3 AIR QUALITY

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of air quality contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.3.1 REGULATORY CONTEXT

The Federal Clean Air Act (CAA) was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. The United States Environmental Protection Agency (USEPA) is the federal agency responsible for identifying air pollutants of concern, establishing air quality standards, and approving and overseeing state air programs which implement the CAA in order to achieve national and state air quality goals.

Criteria Air Pollutants (CAPs)

Criteria Air Pollutants (CAPs) are common pollutants that have been identified by USEPA as being detrimental to human health. CAPs are used as indicators of regional air quality. The USEPA has designated six CAPs: ozone (O_3), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb).

The following CAPs (ozone and particulate matter) are of special concern in the Mojave Desert Air Basin. Only ozone is of special concern in the ~~and~~ San Diego Air Basin~~, where the Barstow site and Los Coyotes site are located, respectively~~.

Ozone

Photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_X) resulting from the incomplete combustion of fossil fuels are the largest source of ground-level O_3. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, O_3 is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. O_3 is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

Particulate Matter

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Particles smaller than 10 micrometers (µm) in diameter (PM_{10}) but greater than 2.5 µm pose the greatest problems, because they can be inhaled deep into the lungs. Exposure to such particles can affect respiratory system function.

National Ambient Air Quality Standards (NAAQS)

The established maximum concentrations for the six CAPs are known as the National Ambient Air Quality Standards (NAAQS). Concentrations above these time-averaged limits are anticipated to cause adverse health effects to sensitive receptors. The CAA established primary and secondary NAAQS. Primary standards set limits to protect public health, while secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. For some of the CAPs, more than one averaging time standard has been identified in order to address the typical exposures found in the environment. The EPA has established violation criteria for each CAP. For example, in order to constitute a violation, the NAAQS for O_3 must be exceeded on more than three days in three consecutive years. On the other hand, if the CO NAAQS is exceeded on more than one day in any given year, a violation has occurred. Refer to **Table 3.3-1** for the violation criteria for the various averaging times for each CAP.

TABLE 3.3-1

NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Symbol	Average Time	Standard (ppm)	Standard (ug/m^3)	Violation Criteria
Ozone	O_3	8 hours	0.075	N/A	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours 1 hour	9 35	N/A N/A	If exceeded on more than 1 day per year If exceeded on more than 1 day per year
Nitrogen dioxide	NO_X	Annual average 1 hour	0.053 N/A	100 N/A	If exceeded N/A
Sulfur dioxide	SO_X	Annual average 24 hours 1 hour	0.03 0.14 0.75	80 365	If exceeded If exceeded on more than 1 day per year N/A
Inhalable particulate matter	PM_{10}	Annual geometric mean Annual arithmetic mean 24 hours	N/A N/A N/A	N/A 50 150	N/A If exceeded If exceeded on more than 1 day per year
Fine particulate matter	$PM_{2.5}$	Annual arithmetic mean 24 hours	N/A N/A	15 35	If exceeded If exceeded on more than 1 day per year
Lead particles	Pb	Calendar quarter 30 days	N/A N/A	1.5 60	If exceeded on more than 1 day per year N/A

Notes: All standards are based on measurements at 25°C and 1 atmosphere pressure. National standards shown are the primary (health effects) standards. N/A = not applicable; ppm = parts per million; ug/m3 = micrograms per cubic meter.

Source: EPA, 2010

The USEPA identifies areas throughout the United States that meet the NAAQS, these areas are labeled either attainment or unclassifiable. Areas that do not meet the NAAQS are labeled either “nonattainment” or “maintenance.”

The USEPA further classifies nonattainment areas according to the level of pollution in each. There are five classes of nonattainment areas: maintenance (recently became compliant with the NAAQS), marginal (relatively easy to obtain levels below the NAAQS), serious, severe, and extreme (will be difficult to reach levels below NAAQS). The CAA uses the classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. Attainment and nonattainment areas are identified through monitoring. Unclassifiable areas are those for which air monitoring has not been conducted but are assumed to be in attainment for the NAAQS. States, municipal statistical areas, air basins, and counties that contain areas of non-attainment are required to develop a SIP, which outlines policies and procedures designed to bring the state into compliance with the NAAQS.

State Implementation Plans (SIPs)

Nonattainment areas must take steps towards attainment by a specific timeline. These steps are consolidated within the SIP as mandated by the CAA. The SIP sets forth the state's strategy for achieving federal air quality standards. The SIP is not a single document, but a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. All of the items that are included in the SIP are published in the Code of Federal Regulations.

Federal General Conformity

The General Conformity Rule of the federal CAA (42 USC 7401), implements Section 176(c) of the Act, and establishes minimum thresholds for volatile organic compounds (VOCs) and NO_X (ozone precursors), particulate matter (10 microns) (PM_{10}), and other regulated constituents for non-attainment and maintenance areas.

Title 40 Part 93 of the Code of Federal Regulations (CFR) was promulgated in order to determine conformity of Federal actions to the applicable SIP. A lead agency must make a determination that a federal action conforms to the applicable implementation plan before the action is taken. A conformity determination is required for each pollutant where a total of direct and indirect emissions in a nonattainment or maintenance area caused by the federal action are greater than *de minimus* thresholds as listed in CFR Section 93.153(b).

The thresholds established in the general conformity rule provide simple and direct guidance for federal agencies to ensure that they comply with an approved SIP. The general conformity rule includes a procedure for determining whether the rule is applicable to the actions of a federal agency. The procedure has two phases:

1) The Conformity Review process, which entails a review of each analyzed alternative to assess whether a full conformity determination is necessary, and
2) The Conformity Determination process, which demonstrates how an action would conform to the applicable SIP.

The first step compares emissions estimates for the project to the appropriate general conformity *de minimus* threshold based on nonattainment type. If the emission estimates from step one are below the thresholds, then a general conformity determination is not necessary and step two is not required.

Other Air Pollutants

Greenhouse Gases

Federal

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. On February 10, 2010 the Council on Environmental Quality (CEQ) provided for public comment its Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (NEPA Guidance). The draft NEPA Guidance provides Federal agencies with guidance on how to analyze the environmental impacts of greenhouse gas (GHG) emissions and climate change when evaluating the environmental impacts of a proposed action under NEPA. The draft NEPA Guidance provides practical tools for agency reporting, including a presumptive threshold of 25,000 metric tons (MT) of direct carbon dioxide equivalent emissions from the proposed action to trigger a quantitative analysis, and instructs agencies how to assess the effects of climate change on the proposed action and its design. The draft NEPA Guidance recommends quantification of GHG emissions, assessment of the significance of any impact on climate change, and, identification of mitigation or alternatives that would reduce GHG emissions. It should be noted that the draft NEPA Guidance has not yet been finalized.
~~In 1997, the Council on Environmental Quality (CEQ) circulated an internal draft memorandum (CEQ, 1997a) on how global climate change should be treated for the purposes of the National Environmental Policy Act (NEPA). The CEQ draft memorandum advised federal lead agencies to consider how proposed actions subject to NEPA would affect sources and sinks of green house gases (GHGs). During the same year, CEQ released guidance on the assessment of cumulative effects in NEPA documents (CEQ, 1997b). Consistent with the CEQ draft memorandum, climate change impacts were offered as one example of a cumulative effect.~~

The following are the most recent regulatory actions taken by the USEPA:

- On July 23, 2009, USEPA published a final "rule which proposes to establish the criteria for including sources or sites in a Registry of Recoverable Waste Energy Sources (Registry)," as required by the Energy Independence and Security Act of 2007. Waste energy can be used to produce clean electricity. The clean electricity produced by waste energy would reduce the need for non-renewable forms of electricity production, thus reducing greenhouse gas (GHG) emissions.

- On September 15, 2009, USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. USEPA proposed the first national GHG emissions standards under the Clean Air Act, and

NHTSA proposed an increase in the Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act.

- In response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. Signed by the Administrator on September 22, 2009, the rule requires that suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines outside of the light duty sector, and facilities that emit 25,000 metric tons or more of GHGs per year to submit annual reports to USEPA. The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.

- On September 30, 2009, USEPA proposed new thresholds for greenhouse gas emissions (GHG) that define when Clean Air Act permits under the New Source Review and title V operating permits programs would be required.

- In February, 2010 The CEQ Chair released a memorandum, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. The memorandum provides guidance on how project-related GHG emission should be analyzed in NEPA documents. The Draft Guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. The guidance notes that the 25,000 metric tons is not a threshold for evaluating climate change on the project level.

State

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of state agencies implementing a variety of state laws and policies. A brief summary of these laws and policies is provided below.

Assembly Bill 1493 (AB 1493)

Signed by the Governor in 2002, AB 1493 requires that the CARB adopt regulations requiring a reduction in GHG emissions emitted by cars in the state. AB 1493 is intended to apply to 2009 and later vehicles. On June 30, 2009, the USEPA granted a Clean Air Act waiver, which the state needs in order to implement AB 1493.

Executive Order S-3-05 (EO S-3-05)

EO S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010,

- Reduce GHG emissions to 1990 levels by 2020, and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" (CAT) headed by the California Environmental Protection Agency and including several other state agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also tasked with creating a strategy to meet the emission reduction target required by the EO. In April 2006 the CAT published an initial report that accomplished these two tasks.

Assembly Bill 32 (AB 32)

Signed by the Governor on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05, specifically the requirement to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 tasks CARB with monitoring state sources of GHGs and designing emission reduction measures to comply with the law's emission reduction requirements. However, AB 32 also continues the CAT's efforts to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall state climate policy.

In order to accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that it estimated could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007a). In order to assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated their 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In its October 2007 report, CARB cited the CAT strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 requires that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. Consequently, in early December 2008 CARB released its scoping plan to the public, which was approved by CARB on December 12, 2008.

The scoping plan calls for an achievable reduction in California's carbon footprint. Reduction of GHG emissions to 1990 levels are proposed, which equates to cutting approximately 30 percent of emissions estimated for 2020, or about 15 percent from today's levels. The scoping plan relies on existing technologies and improving energy efficiency to achieve the 30 percent reduction in GHG emission levels by 2020. The scoping plan provides the following key recommendation to reduce GHG emissions:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a state-wide renewable energy mix of 33 percent;
- Developing a state-wide cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;

- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation.

Executive Order S-01-07 (EO S-01-07)

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in their October 2007 report.

Senate Bill 97 (SB 97)

Signed by the governor on August 24, 2007, SB 97 requires that the Governor's Office of Planning and Research (OPR) prepare California Environmental Quality Act (CEQA) guidelines for evaluating the effects of GHG emissions and for mitigating such effects. The Natural Resources Agency adopted these guidelines in December 2009.

The adopted guidelines provide the following direction for consideration of climate change impacts in a CEQA document:

- The determination of significance of GHG emissions calls for a careful judgment by the lead agency.
- The lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a proposed project.
- A model or methodology shall be used to quantify GHG emissions resulting from a CEQA project.
- Significance may rely on qualitative analysis or performance based standards.
- The lead agency may adopt thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.
- The CEQA document shall discuss regional and/or local GHG reduction plans.
- A CEQA document shall analyze GHG emissions if they are cumulatively considerable.
- A description of the effects of climate change on the environment shall be included in CEQA documents.
- A CEQA document shall contain mitigation measures, which feasibly reduce GHG emissions.
- GHG analysis in a CEQA document may be Tiered or Streamlined.

It should be noted that this EIS/TEIR is not technically a CEQA document, but rather a "CEQA-like" document that has been prepared in accordance with anticipated State gaming compact requirements.

Diesel Particulate Matter

Diesel particulate matter (DPM) is defined as a Hazardous Air Pollutant (HAP). HAPs are substances that are known or suspected to be emitted and have potential adverse health effects. Currently, there are 188 HAPs listed by USEPA. According to USEPA, the estimated health risk from HAPs can be primarily attributed to relatively few compounds, such as DPM. DPM differs from many other HAPs in that it is not a single substance, but rather a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter, which includes carbon particles or "soot."

3.3.2 BARSTOW SITE

Regional Meteorology

The Barstow site is located in a desert climate. During the summer, a Pacific subtropical high cell that sits off the coast generally influences the Mojave Desert Air Basin (MDAB), inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south.

The average annual rainfall at Barstow is approximately 4.4 inches, with 66 percent of the precipitation occurring from November through April. Summer temperatures average 102 ºF in July and winter minimum temperatures average 31 ºF in December (WRCC, 2005).

Prevailing winds in the Barstow area are out of the west and southwest, a pattern caused by the proximity of the Sierra Nevada Mountains to the north, and air masses that are pushed onshore in Southern California by differential heating and channeled through the MDAB. The MDAB is separated from the Southern California Coastal and Central California Valley regions by mountains (highest elevation approximately 10,000 feet), the passes of which form the main channels for these air masses.

Regional Air Quality

The Barstow site is located in the MDAB. The Mojave Desert Air Quality Management District (MDAQMD) has jurisdiction governing air quality in the MDAB under the delegation and oversight of CARB and the EPA; however, once the project site is taken into trust, the EPA would have sole jurisdiction governing air quality on tribal land. MDAQMD has jurisdiction over the desert portion of San Bernardino County and the far eastern end of Riverside County in accordance with the California Clean Air Act (CCAA). MDAQMD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. MDAQMD has adopted attainment plans for a variety of nonattainment pollutants, including the *Mojave Desert Planning Area Federal Particulate Matter Attainment Plan for* PM_{10} and the *Triennial Revision to the 1991 Air Quality Attainment Plan* for ozone. Although it does not have jurisdiction on tribal lands, MDAQMD is the regional agency responsible for protecting public health from air pollution in the MDAB.

NAAQS Designations

As shown in **Table 3.3-2**, the MDAB has been designated nonattainment under the federal 8-hour ozone standard with an attainment deadline of 2021. Because the MDAB is designated severe-17 nonattainment for O_3, the *de minimus* threshold for O_3 precursors (ROG and NO_X) is 25 tons per year. The MDAB has also been designated moderate nonattainment for PM_{10}, and a *de minimus* threshold of 100 tons per year has been established. The MDAB meets the federal standards or is unclassifiable for all other pollutants.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

TABLE 3.3-2
MOJAVE DESERT AQMD NAAQS ATTAINMENT STATUS

Pollutant	Federal Attainment Status
Ozone (8-hour)	**Nonattainment, Severe-17**
Particulate Matter (PM_{10})	**Nonattainment, moderate**
Particulate Matter ($PM_{2.5}$)	Unclassifiable/Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Unclassifiable/Attainment
Sulfur Dioxide	Unclassifiable/Attainment
Source: MDACMD, 2009.	

Surrounding land uses consist of open desert and commercial shopping. The nearest hospital is over three miles from the project site. One school (Lenwood School) is located approximately two miles away. Two miles north of the Barstow site is a recreation corridor, and adjacent to the site is the 33,500-acre Stoddard Valley Off-Highway Vehicle area.

3.3.3 LOS COYOTES SITE

Regional Meteorology

The Los Coyotes site is in the northwest portion of San Diego County, which has a Mediterranean-type climate characterized by hot summers, mild winters, and an almost complete absence of rain for three to

four months during the summer. Light to moderate rainfall generally occurs during the winter. A dominating factor in the weather of southern California is the semi-permanent, high-pressure area in the eastern Pacific. This pressure center migrates north in summer, holding storm systems well to the north of the area. Consequently, southern California receives little or no precipitation during the summer. In winter, the Pacific High retreats southward, allowing storm centers to move into and across southern California. These storms bring widespread, moderate precipitation to southern California. The average annual rainfall at the Warner Springs weather station (approximately 5 miles west-northwest of the Los Coyotes site) is 12.85 inches, with 71 percent of the precipitation occurring from November through April. Summer temperatures average 95 ºF in July and winter minimum temperatures average 24º F in January (WRCC, 2008).

The Los Coyotes site is surrounded by low mountains interspersed with long valleys. Many of the lower mountains, which dot the vast terrain, rise from 1,000 to 4,000 feet. The San Diego region is bordered on the south by Mexico's high desserts, on the west by the Pacific Ocean, and on the east by the Salton Sea. The prevailing wind directions in the area are west-southwest to west. Average annual wind speed is six miles per hour (mph). Calm wind conditions occur approximately 21 percent of the time. Strong winds and gales are infrequent in the region, with wind speeds over 30 miles per hour occurring only approximately once each year on the average.

Low-level temperature inversions (below 1,500 feet) occur frequently over southern California. Southern California's inversion layer is famous for creating cloudless summer days and for trapping pollutants to form smog. Pollutants in San Diego County stop at the lower mountain slopes, because the inversion layer that traps these pollutants against the slopes hovers around 2,000 feet. Therefore, high mountain locations above 4,000 feet, such as the Los Coyotes site, are relatively free of smog (SDCAPCD, 2005).

Regional Air Quality

The Los Coyotes site is located in the San Diego Air Basin (SDAB). The San Diego Air Basin is comprised of a single air district, the San Diego County Air Pollution Control District (SDCAPCD), which consists of San Diego County. SDCAPCD is responsible for regulating air quality on a local level in San Diego County. SDCAPCD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. SDCAPCD has adopted attainment plans for a variety of nonattainment pollutants, including the *2004 Triennial Revision of the Regional Air Quality Strategy for San Diego County* and the *Ozone Redesignation Request and Maintenance Plan for San Diego County*. Although it does not have jurisdiction on tribal lands, SDCAPCD is the regional agency responsible for protecting public health from air pollution in the SDAB.

NAAQS Designations

As shown in **Table 3.3-3**, San Diego County has been designated "basic" nonattainment under the federal 8-hour ozone standard with an attainment deadline of June 2009. However, the EPA has yet to make a change to the ozone attainment status in San Diego County. The nonattainment area is valid for the entire San Diego County with the exception of the San Diego Tribes sub-areas. The Los Coyotes site is not located in one of the San Diego Tribes sub-areas. San Diego County is designated nonattainment for O_3,

with an established *de minmus* threshold for O_3 precursors (VOC and NO_X) of 100 tons per year. San Diego County meets the federal standards or is unclassifiable for all other pollutants.

Sensitive Receptors

Surrounding land uses consist mainly of grazing land. No hospitals are located within three miles of the site and the nearest school (Warner Union School) is located approximately six miles away. The nearest tribal residence is more than two miles from the project site.

TABLE 3.3-3
SAN DIEGO COUNTY NAAQS ATTAINMENT STATUS

Pollutant	Federal Attainment Status
Ozone (8-hour)	Nonattainment
Respirable Particulate Matter (PM_{10})	Unclassifiable
Fine Particulate Matter ($PM_{2.5}$)	Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Attainment
Sulfur Dioxide	Attainment
Source: SDCAPCD, 2010	

3.4 BIOLOGICAL RESOURCES

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of biological resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.4.1 BARSTOW SITE

Methodology

For the purpose of this Environmental Impact Statement/Tribal Environmental Impact Report (EIS/TEIR), biological resources are considered to include all plants, vegetation communities and other wildlife habitats, wildlife, and waters of the U.S. Vegetation communities within the project site were identified during literature reviews and further classified (i.e., ground-truthed) during the field surveys. A review of the California Natural Diversity Data Base (CNDDB) was conducted and species lists were obtained from United States Fish and Wildlife Service (USFWS) and the California Native Plant Society (CNPS) to identify special-status species or other sensitive biological communities potentially present within the site. The CNDDB and CNPS database queries were conducted for the "Barstow, CA" 7.5-minute quadrangle (quad) and the surrounding eight quads (i.e., West Ord Mountain, Stoddard Well, Turtle Valley, ~~Water Valley, Mud Hills, Lane Mountain,~~ Nebo, Daggett, Barstow ~~SE~~, Hodge, and Hinkley). Field assessments of the Barstow site (project site) and vicinity were conducted on May 3 and 4, 2006, and again on March 29 and 30, 2012. The biological surveys were conducted by walking transects 40 to 60 feet apart in order to view and evaluate all areas within the project site~~The field assessments were performed by pedestrian survey~~. All visible fauna and flora were noted and identified to the lowest possible taxonomic level, which is required for accurate identification and reporting. Habitat types present within the project site were characterized and evaluated for their potential to support regionally occurring special-status species. The project site was also assessed for the presence of potentially jurisdictional waters of the U.S. and other biologically sensitive features.

A Biological Assessment has been prepared to evaluate the potential for the Mojave desert tortoise (*Gopherus agassizii*) to occur within the Barstow site (**Appendix T** of the Final EIS/TEIR). A detailed description of methodology and consultation with the USFWS regarding the Mojave desert tortoise is included within the Biological Assessment and summarized herein.

Biological Setting

The 23.1-acre project site is located at the southwestern end of the City of Barstow, San Bernardino County, California. The project site is within the western Mojave Desert and is located within the Desert Floristic Provence and the Mojave Desert Geographic Subdivision of California (Hickman, 1993). The dominant vegetation type within this region of California is characteristic of its many alkaline basins and includes Mojave creosote-bush scrub and saltbush scrub. Elevations within the project site range from approximately 728 to 736 meters above mean sea level (amsl) or 2,390 feet to 2,415 feet.

Mojave creosote bush scrub is dominated by shrubs such as creosote bush (*Larrea tridentata*), senna (*Senna armata*), ephedra (*Ephedra nevadensis*), burrobrush (*Hymenoclea salsola*), desert almond (*Prunus* sp.), and white bur-sage (*Ambrosia dumosa*). These shrubs are generally two-to-ten feet tall and widely spaced. Mojave creosote bush scrub generally occurs on well-drained soils on slopes, fans, and in valleys (Holland, 1986). Desert saltbush scrub is generally dominated by gray, microphyllous shrubs that are generally one-to-four feet tall and widely spaced. Typical stands of desert saltbush scrub are strongly dominated by a single species of saltbush (*Atriplex* sp.). Other species known to occur within this vegetation type include honey mesquite (*Prosopis glandulosa*), bush seepweed (*Suaeda moquinii*), hop-sage (*Grayia spinosa*), and kochia (*Kochia californica*). Desert saltbush scrub normally occurs on fine-textured, poorly drained soils with high alkalinity and/or salinity (Holland, 1986).

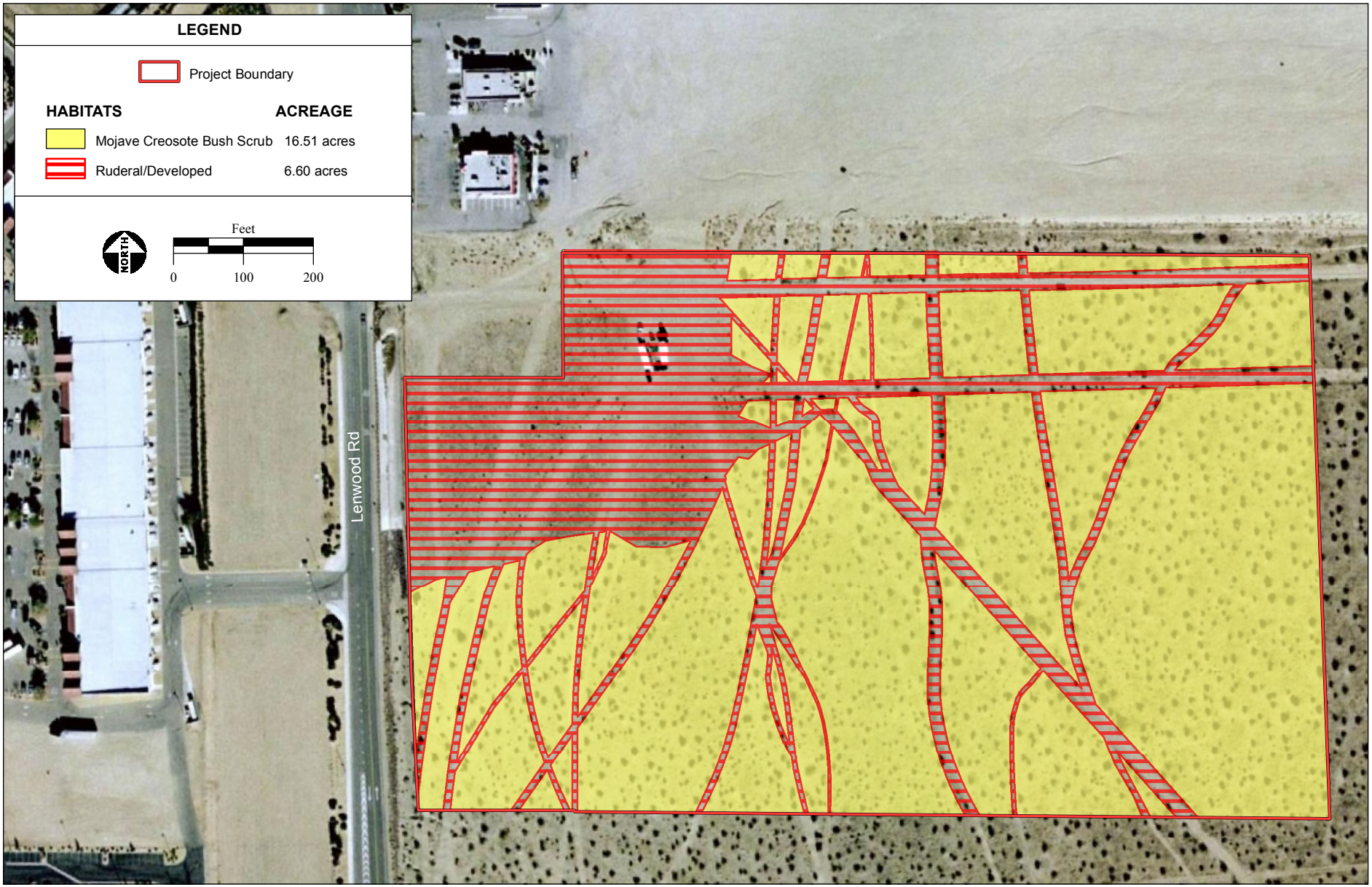
Habitat Types

Mojave Creosote Bush Scrub

According to the Holland vegetation classification system, the dominant habitat type within the project site is #34100 Mojave creosote bush scrub (Holland, 1986). Approximately ~~22.79~~16.51 acres of Mojave creosote bush scrub habitat was mapped within the project site (**Figure 3.4-1**). **Figure 3.4-2** (**Photos 1** and **2**) shows photographs of the Mojave creosote bush scrub habitat type. ~~Creosote bush, saltbush (*Atriplex polycarpa*), white bur-sage, and Mediterranean grass (*Schismus barbatus*) are the dominant plant species observed within this habitat type.~~ The dominant shrub is creosote bush (*Larrea tridentata*), which occupies approximately ten percent groundcover. The subdominant shrub is saltbush (*Atriplex polycarpa*), which occupies approximately two percent groundcover. A scattering of white bur-sage (*Ambrosia dumosa*) also occurs at the project site. The dominant herbaceous plant species is Mediterranean grass (*Schismus barbatus*), which occupies approximately 50 percent groundcover. Creosote bush individuals onsite average approximately five feet tall and saltbush individuals average approximately two feet tall. The total shrub cover is approximately 12 percent and the total herbaceous vegetation cover is approximately 60 percent.

Ruderal/Developed

Approximately ~~0.32~~ 6.60 acres of ruderal/developed habitat exists within the project site ~~on the northeastern region of the project site, where the majority of the vegetation has been removed. Several trailers and tent-like structures are parked within this portion of the project site and it appears that it is being used as a transient (i.e., unsanctioned) camping site~~ (**Figure 3.4-2**, **Photo 3**). Ruderal/developed habitat includes an area where a house and associated infrastructure once existed and had been removed prior to the May 3 and 4, 2006 biological surveys,~~.~~ as well as several dirt roads that crisscross the project site that are used to access the adjacent Stoddard Valley Off-Highway Vehicle (OHV) area. Several small horticultural trees, including pine (*Pinus* sp.) and cottonwood (*Populus* sp.), and a small amount of herbaceous vegetation remain within the project site.



SOURCE: GoogleEarth/DigitalGlobe 2006; AES, 2011

Figure 3.4-1

Habitat Map – Barstow Site

PHOTO 1: Mojave creosote bush scrub on the Barstow site. View from east to west.

PHOTO 2: Mojave creosote bush scrub on the Barstow site. View from north to southeast.

PHOTO 3: View of Ruderal/Developed habitat. A house had been built and later torn down in this area.

SOURCE: AES, 2011

Figure 3.4-2
Site Photographs – Barstow Site

Waters of the U.S.

The term "waters of the U.S." is defined in 33 CFR Part 328 as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes; or natural ponds, the use or degradation of which could affect interstate or foreign commerce including any such waters:
    i. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
    ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    iii. Which are used or could be used for industrial purpose by industries in interstate commerce.

"Wetlands" are defined as:

- 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 (38 CFR Part 328).

An assessment of potentially jurisdictional waters of the U.S. was conducted by AES during the 2006 field surveys. No potentially jurisdictional wetlands or other waters of the U.S. were observed within the project site during this assessment.

Observed Wildlife

The Mojave creosote bush scrub habitat within the project site provides habitat for a variety of wildlife species. Bird species observed during the field surveys include: mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), loggerhead shrike (*Lanius ludovicianus*), barn swallow (*Hirundo rustica*), Gambel's quail (*Callipepla gambelii*), and western tanager (*Piranga ludoviciana*). Mammal species observed include: coyote (*Canis latrans*), antelope ground squirrel (*Ammospermophilus leucurus*), and black-tailed jackrabbit (*Lepus californicus*). One reptile species was observed; western whiptail (*Cnemidophorus tigris*).

Special-Status Species

The USFWS, CNDDB, and CNPS lists of regionally occurring special-status species are included for reference purposes as **Appendix F** of the Draft EIS/TEIR and **Appendix S** of this Final EIS/TEIR. A list of regionally occurring special-status species reported in the scientific database queries was compiled for the project site and this list is also presented in **Appendix F** of the Draft EIS/TEIR and **Appendix S** of

this Final EIS/TEIR. An analysis to determine which of these special-status species have the potential to occur within the project site was conducted. The habitat requirements for each regionally occurring special-status species were assessed and compared to the type and quality of habitats observed on-site during the field surveys. The analysis was also based upon a review of pertinent literature, aerial photographs, site topographic maps, informal consultation with USFWS and local experts, and mapped CNDDB occurrences of special-status species within a five-mile radius of the project site. Several regionally occurring special-status species were eliminated due to lack of suitable habitat within the project site, elevation range, lack of suitable substrate/soils, and/or distribution. Species determined to have no potential to occur on-site are not discussed further.

All ~~resultant~~ occurrences of special-status species reported within a five-mile radius of the project site were plotted on a map, which is presented as **Figure 3.4-3**. The project site contains suitable habitat for seven special-status species; three plants, one reptile, two birds, and one mammal. **Table 3.4-1** contains those state and CNPS-listed species with suitable habitat on-site that were reported by CNDDB within five miles of the project site. **Table 3.4-2** consists of the federally listed species that have suitable habitat on-site or are reported to occur within the project site and immediate vicinity.

Special-status species that are formally listed by the state and/or recognized by state agencies, CNPS, or other local jurisdictions because of their rarity or vulnerability to habitat loss or population decline generally receive no specific protection on tribal lands taken into trust by the federal government. Federally recognized Tribes are regarded as independent and sovereign nations. While Tribes have no formal obligation to protect or preserve special-status species other than those that are federally listed, because the Barstow site is not currently federal trust land, potential impacts to state listed species are discussed in **Section 4.4** and mitigation to reduce potential effects to state listed species is recommended in **Section 5.0**. For the purposes of this EIS/TEIR, federally listed species include those plant and animal species that are listed as endangered or threatened under the Federal Endangered Species Act (FESA), or formally proposed for listing.

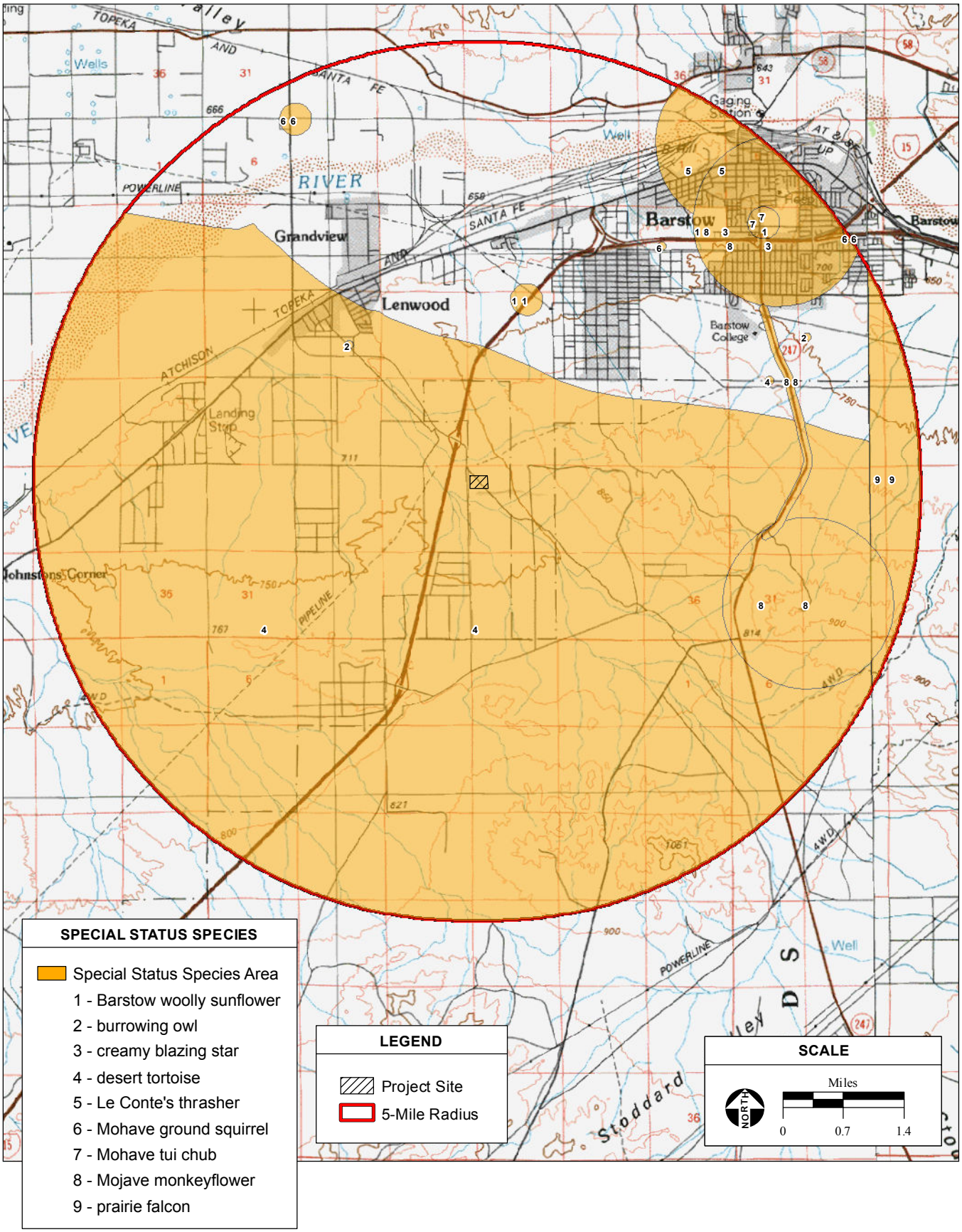
State and CNPS Listed Species

Plant Species

Three CNPS List 1B plant species are reported within five miles of the Barstow site and have potential to occur on-site: Barstow woolly sunflower (*Eriophyllum mohavense*), creamy blazing star (*Mentzelia tridentata*), and Mojave monkeyflower (*Mimulus mohavensis*). None of these species were observed during the field assessment on May 3 and 4, 2006, which was conducted during the blooming season for these species.

Bird Species

Two bird species, which are both California species of special concern, are reported within five miles of the Barstow site and have potential to occur on-site: western burrowing owl (*Athene cunicularia*) and Le Conte's thrasher (*Toxostoma lecontei*). Suitable nesting and foraging habitat exists for these bird species on-site. A third bird species, the prairie falcon (*Falco mexicanus*) is reported within five miles of the Barstow site (**Figure 3.4-3**). This species has no special federal or state status, but is tracked by the CNDDB. No suitable nesting habitat for this species exists on-site, but there is marginally suitable



SOURCE: California Natural Diversity Database, 2009; "Victorville, CA" USGS 100K Topographic Quadrangle, San Bernadino Baseline & Meridian; AES, 2011

Figure 3.4-3

Special Status Species Within 5-Miles of the Barstow Site

TABLE 3.4-1
STATE AND CNPS SPECIAL-STATUS SPECIES LIST FOR THE BARSTOW SITE

SCIENTIFIC NAME COMMON NAME	STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
PLANTS				
Eriophyllum mohavense Barstow woolly sunflower	--/1B	San Bernardino County	Chenopod scrub, Mojave~~an~~ desert scrub, and playas; elevation 1,640-3,150 feet.	April-May
Mentzelia tridentata Creamy blazing star	--/1B	Imperial, Inyo, Kern, Riverside, San Bernardino, and San Diego Counties	Mojave~~an~~ desert scrub; elevation 2,300-3,805 feet.	March-May
Mimulus mohavensis Mojave monkeyflower	--/1B	San Bernardino County	Joshua tree woodland and Mojave~~an~~ desert scrub in gravelly areas; elevation 1,970-3,935 feet.	April-June
ANIMALS				
~~Reptiles~~				
~~*Gopherus agassizii*~~ ~~Desert tortoise~~	~~FT~~	~~In California, occurs throughout major portions of the Mojave and Sonoran deserts, generally between 2000-3300 feet in elevation.~~	~~Within the West Mojave Desert, primarily occur in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub.~~	~~March-October~~
Birds				
Athene cunicularia Western burrowing owl	CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year
Toxostoma lecontei Le Conte's Thrasher	CSC/--	An uncommon to rare local resident in Southern California deserts from Inyo County south to the Mexican border and in western and southern San Joaquin Valley.	Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat.	All Year
Mammals				
Spermophilus mohavensis Mohave ground squirrel	CT/--	Restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. Populations in southwestern San Bernardino County appear to be extirpated.	Optimal habitats are open desert scrub, alkali desert scrub, and Joshua tree. Also feeds in annual grasslands.	All Year

STATUS CODES
STATE: California Department of Fish and Game
CT Listed as Threatened by the State of California
CSC California Species of Special Concern

CNPS: California Native Plant Society
List 1B Plants rare or endangered in California and elsewhere

Source: California Department of Fish and Game, 2003; CNPS, 2009.

TABLE 3.4-2
FEDERAL SPECIAL-STATUS SPECIES LIST FOR THE BARSTOW SITE

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
ANIMALS				
Reptiles				
Gopherus agassizii Desert tortoise	FT	In California, occurs throughout major portions of the Mojave and Sonoran deserts, generally between 2000-3300 feet in elevation.	Within the West Mojave Desert, primarily occur in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub.	March-October

STATUS CODES
FEDERAL: U.S. Fish and Wildlife Service and National Marine Fisheries Service
FT Listed as Threatened by the Federal Government

Source: U.S. Fish and Wildlife Service, 2009.

foraging habitat on-site. ~~Neither~~None of these three species were observed during the May 3 and 4, 2006 and March 29 and 30, 2012 field assessments, which ~~was~~were conducted during the appropriate identification period for these birds.

Mammal Species

State threatened Mojave ground squirrel (*Spermophilus mohavensis*) is the only state-listed mammal species that is reported to occur within five miles of the project site that has potential to occur on-site. Mohave ground squirrel was not observed during the May 3 and 4, 2006 and March 29 and 30, 2012 field assessments, which ~~was~~were conducted during the appropriate identification period for this species.

Federally Listed Species

Plant Species

Five federally listed plant species occur within San Bernardino County. Four of these five species, Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*), Cushenbury milk-vetch (*Astragalus albens*), Cushenbury oxytheca (*Oxytheca parishii var. goodmaniana*), and Parish's daisy (*Erigeron parishii*), occur primarily in carbonate deposits or soils derived from them, in the San Bernardino Mountains. Neither this habitat nor range approximates the habitat or range in which the project site occurs. Likewise, the project site is below the range of elevation that these four plant species are known to occur. The project site is also below the known range of elevation for the fifth federally listed plant, Lane Mountain milk-vetch (*Astragalus jaegerianus*). Soils on the project site do not provide habitat for Lane Mountain milk-vetch, as most plants of this species occur in shallow soils. The soils on-site are deep, mapped as Cajon Sand, 2 to 9 percent slopes (USDA, 1986). None of the five federally listed plant species known to occur within San Bernardino County have been documented within a five-mile radius of the project site. Cushenbury milk-vetch, Lane Mountain milk-vetch, Parish's daisy, Cushenbury buckwheat, and Cushenbury oxytheca were not observed within the project site during the May 3-4 field assessment, which was conducted during the blooming season for these federally-listed plant species.

Amphibian and Fish Species

All federally listed amphibian and fish species that occur in San Bernardino County, including arroyo toad (*Bufo microscaphus californicus*), California red-legged frog (*Rana draytonii*), bonytail chub (*Gila elegans*), Mohave tui chub (*Gila bicolor mohavensis*), and razorback sucker (*Xyrauchen texanus*)~~,~~ require intermittent or perennial aquatic habitat for survival. Suitable habitat for these species is not present within the project site.

Bird Species

Four federally listed bird species occur in San Bernardino County, including least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus*), and Yuma clapper rail (*Rallus longirostris yumanensis*). All of these species require some form of intermittent or perennial aquatic habitat. The least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo require dense riparian habitat types. The project site and vicinity lack riparian habitat. Yuma clapper rail requires marsh habitat, which does not occur within the project site or immediate vicinity.

Reptile Species

One federally listed threatened reptile species, Mojave desert tortoise (*Gopherus agassizii*) occurs in San Bernardino County. This species is also listed as "threatened" by the state. Desert tortoise has the potential to occur within the Mojave creosote bush scrub habitat on-site. A more detailed description of this species is provided below.

Desert Tortoise (*Gopherus agassizii*)
Federal Status – Threatened

The desert tortoise is a medium-sized, terrestrial reptile. It is a long-lived animal (maximum age in the wild is likely about 50 to 70 years) that begins reproducing at approximately 12 to 15 years of age. Desert tortoise activity patterns are primarily determined by ambient temperature and precipitation. They lay most of their eggs in the spring and, to a lesser extent, in the fall. Most precipitation in the West Mojave Desert occurs during the winter; therefore, most vegetation grows in the spring, and dries up by late May or June. Tortoises in the West Mojave are primarily active between May and June, with a secondary activity period from September through October. Tortoises may be seen, to a lesser extent, outside of these periods. Within the West Mojave Desert, the highest tortoise population densities are found in Mojave creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub (BLM, 2006a).

The USFWS published a final recovery plan for desert tortoise in May 2011 (2011 Recovery Plan; USFWS, 2011). The 2011 Recovery Plan replaces the 1994 Recovery Plan and divided Mojave desert tortoise into five recovery units: Upper Virgin River Recovery Unit, Northeastern Mojave Recovery Unit, Eastern Mojave Recovery Unit, Colorado Desert Recovery Unit, and Western Mojave Recovery Unit.

Recovery actions implemented pursuant to the former 1994 Recovery Plan included formalizing DWMAs through federal land use planning processes. DWMAs had no specific legal boundaries in the 1994 Recovery Plan. The BLM formalized the general DWMAs from the 1994 Recovery Plan through its planning process and administers them as ACECs, as identified within the 2011 Recovery Plan. ACECs are specific, legally defined, BLM designations where special management is needed to protect and prevent irreparable damage to important historical, cultural, scenic values, fish and wildlife, and natural resources (in this case, the Mojave desert tortoise) or to protect life and safety from natural hazards. The ACECs define specific management areas based on the general recommendations for DWMAs in the 1994 Recovery Plan. The BLM DWMAs/ACECs, together with National Park Service lands, designated wilderness areas, other lands allocated for resource conservation, and restricted access military lands provide an extensive network of habitats that are managed directly or indirectly for Mohave desert tortoise conservation (USFWS, 2011).

The project site does not occur within a designated ACEC or DWMA, USFWS designated critical habitat (59 FR 5820-5866), or other area managed directly or indirectly for Mojave desert tortoise conservation, as defined within the 2011 Recovery Plan. The nearest designated critical habitat for the Mojave desert tortoise is the Ord-Rodman DWMA, which occurs approximately four miles east of the project site. The Stoddard Valley OHV area is situated between the Ord-Rodman DWMA and the project site. The second

nearest designated critical habitat for the Mojave desert tortoise is Superior-Cronese Lakes DWMA, which occurs approximately six miles north of the project site. Urban/developed areas within the City of Barstow are situated between the Superior-Cronese Lakes DWMA and the project site. The project site is within the Western Mojave Recovery Unit for the Mojave desert tortoise (USFWS, 2011). The Western Mojave Recovery Unit includes Fremont-Kramer, Superior-Cronese, and Ord-Rodman critical habitat units and the western half of Death Valley National Park, Marine Corps Air Ground Combat Center, Fort Irwin National Training Center, China Lake Naval Weapons Center, and Edwards Air Force Base.

There are two CNDDB records documented for this species within five miles of the project site (**Figure 5**). One record is from 2004 (CNDDB occurrence number 1) and the coordinates documenting the centroid of the record are located approximately 20 miles northwest of the project site. The record states that four primary populations were observed within 1,700 square miles comprised of several vegetation communities at elevations from 2,000 to 4,000 feet. The other record is from 2006 (CNDDB occurrence number 110) and occurs approximately two miles northeast of the project site. The record states that five adults and eight carcasses were observed on an approximately 75-acre property comprised of rocky hills, gravel soils, and sandy washes with creosote bush and white bur-sage vegetation.

The project site is dominated by Mojave creosote bush scrub with evidence of a transition to saltbush scrub. Mojave creosote bush scrub is suitable habitat for the desert tortoise. Although Mojave creosote bush scrub provides habitat for the Mojave desert tortoise, the habitat is of low quality on-site because of several dirt roads crisscrossing the site and the urban land uses and barriers to overland movement surrounding the project site including Lenwood Road, an outlet mall, developed areas within the City of Barstow to the west and north, and the Stoddard Valley OHV area, which is heavily used by off-road vehicle traffic, to the south and east. The highways located to the north and west of the project site are likely barriers to Mojave desert tortoise movement. No Mojave desert tortoises or their signs were observed during the March 30, 2012 protocol survey conducted within the project site (**Appendix T** of the Final EIS/TEIR). Given that the site is highly disturbed and the land uses surrounding the project site consist of OHV use, paved roads, and commercial development, and that no Mojave desert tortoise or their sign was observed during the biological surveys, this species is unlikely to occur within the project site.
~~However, the transitional nature of the habitat reflects the less-than-optimal quality of the habitat for desert tortoises. The project site is located adjacent to paved roads and outlet malls, undeveloped land used as an off highway vehicle (OHV) site, and privately owned vacant land fronting on the paved road. CNDDB's mapping of the project site places the site within the boundaries of one of California's primary desert tortoise populations (an area of approximately 1,700 square miles). According to USFWS's mapping, the project site is not located within designated critical habitat for the desert tortoise (59 FR 5820-5866). During the May 3-4, 2006, field surveys, no evidence of desert tortoise (sightings, burrows, scat, tracks, or carcasses) was observed. The chance of occurrence of desert tortoise within the project site is considered low.~~

3.4.2 LOS COYOTES SITE

Methodology

For the purpose of this EIS/TEIR, biological resources are considered to include all plants; vegetation communities and other wildlife habitats; wildlife; and waters of the U.S. Vegetation communities were identified during literature reviews and surveys. As done for the Barstow site, a review of the CNDDB was conducted and species lists were obtained from USFWS and the CNPS to identify special-status species or other sensitive biological resources potentially present on the three sites. A field assessment of the Los Coyotes site and vicinity was conducted on May 2, 2006. The field assessment was performed by pedestrian survey. All visible fauna and flora were noted and identified to the lowest possible classification; habitat types occurring in the study area were characterized and evaluated for their potential to support regionally occurring special-status species. The site was also assessed for the presence of waters of the U.S. and other biologically sensitive features.

Biological Setting

The Los Coyotes site is located within the Los Coyotes Reservation in San Diego County, California. Characteristic plant communities that occur in the region are non-native grassland and coast live oak woodland. Non-native grassland typically occurs below 3000 feet, but can exist as high as 4000 feet in the Tehachapi Mountains and in interior San Diego County. Plant species that are characteristic of non-native grasslands can include wild oat (*Avena fatua*), *Bromus* spp., storksbill (*Erodium* spp.), tarplant (*Hemizonia* spp.), goldfields (*Lasthenia* spp.), *Layia* spp., *Lupinus* spp., peppergrass (*Lepidium dictyotum*), baby blue eyes (*Nemophila menziesii*), *Orthocarpus* spp., and *Phacelia* spp. (Holland, 1986). Coast live oak woodland is typically found below 4000 feet in elevation. The dominant tree that characterizes this habitat is coast live oak (*Quercus agrifolia*). The shrub layer is often poorly developed, but can include blue elderberry (*Sambucus mexicana*), *Ribes* spp., or toyon (*Heteromeles arbutifolia*). The herb layer is often dominated by ripgut brome (*Bromus diandrus*) and other grasses (Holland, 1986).

The Los Coyotes site ranges in elevation from approximately 4,500 feet above mean sea level (amsl) on the southwestern corner, to approximately 4,585 feet amsl on the northeastern corner. The site topography consists of terrain sloping gently to the south. The terrain slopes steeply to a higher elevation directly outside of the project site on both the east and west sides. Soil on the site is described as loamy alluvial sands and loamy course sands.

Habitat Types

Non-Native Grassland

The majority of the site consists of a non-native grassland community, comprising 11.19 acres (**Figure 3.4-4**). The dominant species within this habitat are buckwheat (*Eriogonum wrightii*), goldfields (*Lasthenia californica*), storksbill (*Erodium cicutarium*), and cheatgrass (*Bromus tectorum*). The subdominant species include *Lupinus* spp. and popcornflower (*Plagiobothrys nothofulvus*) (**Figure 3.4-5**, **Photo 8**).

SOURCE: USGS Aerial Photo dated 4/1/04; AES, 2011

Figure 3.4-4

Habitat Map – Los Coyotes Site

PHOTO 8: Non-native grassland habitat on the Los Coyotes site. View from north to south.

PHOTO 9: Coast live oak woodland habitat on the Los Coyotes site. View from the northern portion of the site, looking north.

PHOTO 10: Large seasonal wetland immediately south of the Los Coyotes site. View from south to north onto site.

PHOTO 11: San Ysidro Creek, a seasonal drainage immediately west of the Los Coyotes site. View from north to south.

SOURCE: AES, 2011

Figure 3.4-5

Site Photographs – Los Coyotes Site

Coast Live Oak Woodland

Approximately 5.77 acres of coast live oak woodland occurs in the northern and southern thirds of the project site. The dominant species present in this habitat includes coast live oak (*Quercus agrifolia*), canyon live oak (*Quercus chrysolepis*), and ripgut brome (*Bromus diandrus*). The subdominant species include miner's lettuce (*Claytonia perfoliata*) and California coffeeberry (*Rhamnus californica*) (**Figure 3.4-5**, **Photo 9**).

Intermittent Channel

San Ysidro Creek, an intermittent channel, exists immediately to the west of the Los Coyotes site (**Figure 3.4-5**, **Photo 11**). Approximately 0.19 acres of this channel occur within the Los Coyotes site. This channel has a sandy bottom and varies between 1 and 10 feet in width. The channel runs between the Los Coyotes site and the existing gravel road. Vegetation was very limited within the channel as the sandy base did not allow for much growth, but several grasses including soft chess (*Bruomus hordeaceus*), cheatgrass (Bromus tectorum), bulbous barley (*Hordeum murinum*), and ripgut broam (*Bromus diandrus*) grew along the banks of the channel.

Seasonally Wet Depressions

A large seasonally wet depression occurs south of the project site (**Figure 3.4-5**, **Photo 10**). A small portion of this wetland, 0.016 acres, exists within the project site, on the southern boundary of the site. The dominant species in this wetland area include willow (*Salix* sp.), *Juncus* sp., and barley (*Hordeum murinum*). Hydric soil indicators such as low chroma color values are present in this wetland area.

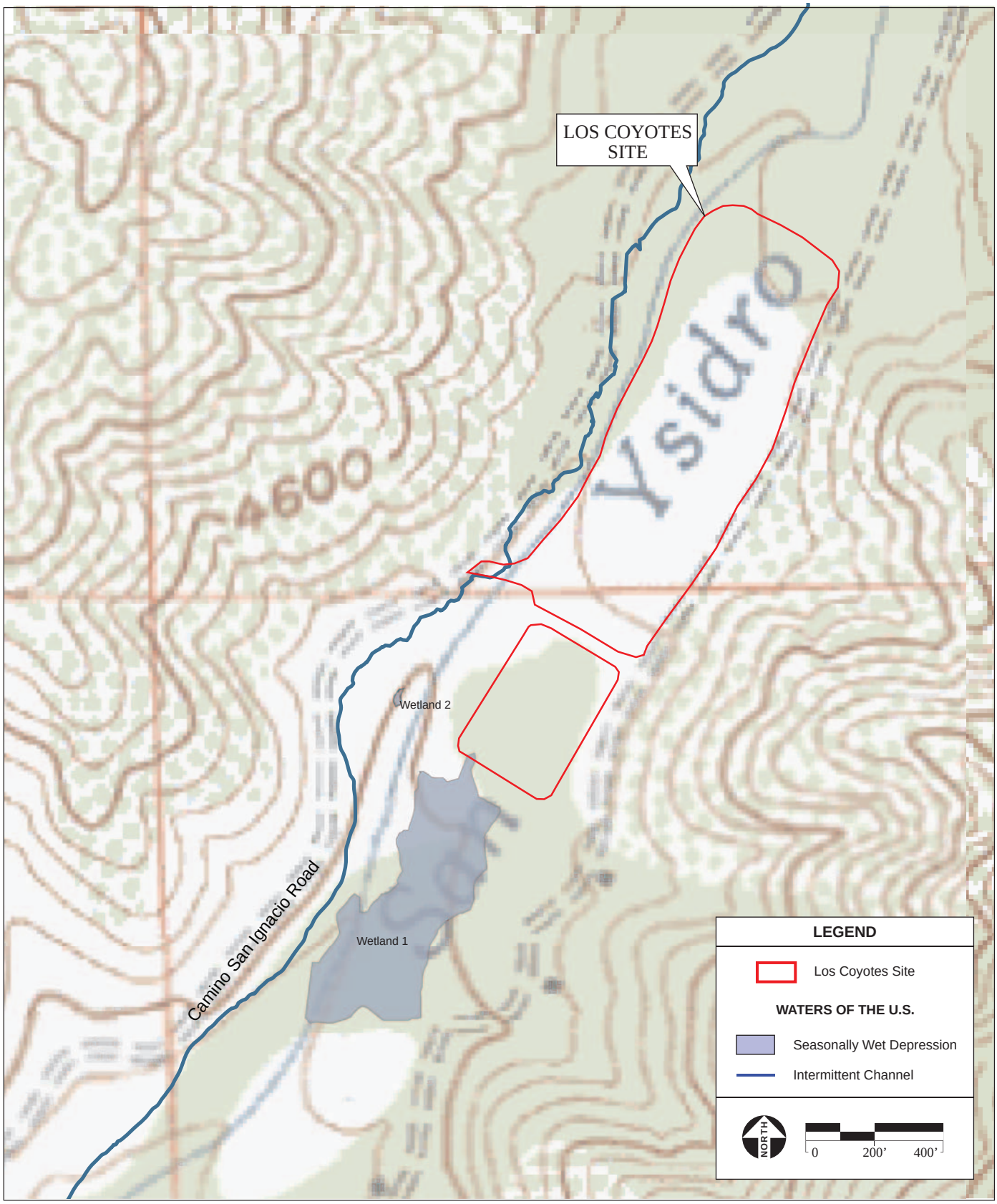
Waters of the U.S.

The Los Coyotes site is located in the San Luis Rey watershed. San Ysidro Creek, Cougar Canyon Creek, and Borrego Palm Canyon Creek are the main streams that run through the Los Coyotes reservation. The survey site is located near San Ysidro Creek, Panawatt Springs, Blackwater Hole, and Weowlet Spring.

An assessment of potential waters of the U.S. was conducted by AES during the May 2006 field survey. San Ysidro Creek, an intermittent channel, runs along the western boundary of the survey site. A small segment of a larger seasonal wetland extends into the southern boundary of the project site. The portion of the seasonal wetland within the project site is 0.016 acres. This wetland area is discussed above. **Figure 3.4-6** shows the location of these waters.

OBSERVED WILDLIFE

A variety of wildlife may use the habitats on the project site. The bird species observed on-site include: western bluebird (*Sialia mexicana*), red-tailed hawk (*Buteo jamaicensis*), Steller's jay (*Cyanocitta stelleri*), lesser nighthawk (*Chordeiles acutipennis*), Nuttall's woodpecker (*Picoides nuttallii*), acorn woodpecker (*Melanerpes formicivorus*), Anna's hummingbird (*Calypte anna*), lark sparrow (*Chondestes grammacus*), barn owl (*Tyto alba*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), band-tailed pigeon (*Columba fasciata*), yellow warbler (*Dendroica petechia*), oak titmouse (*Baeolophus inornatus*) and white-breasted nuthatch (*Sitta carolinensis*). Mammal species observed on-site include: pocket gopher (*Thomomys bottae*) and



SOURCE: Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 3.4-6

Waters of the U.S. – Los Coyotes Site

beechey ground squirrel (*Spermophilus beecheyi*). Mule deer (*Odocoileus hemionus*) and cattle (*Bos taurus*) tracks and scat were also seen on the project site.

Special Status Species

Methodology

The list of special status species that may be potentially impacted by developing the Los Coyotes site was generated based upon the same parameters as discussed for the Barstow site. Each resource was evaluated to generate a State and CNPS Special Status Species Table and a Target Species Table for the site (**Table 3.4-3~~5~~** and **Table 3.4-4~~6~~)**. A map of special status species within a five-mile radius of the site is shown in **Figure 3.4-7**. The federal species list that addressed species occurring within the 25,050 acre Los Coyotes Reservation, obtained from the Carlsbad USFWS office was used to determine federal species potential to occur on the Los Coyotes site (**Appendix F** of the Draft EIS/TEIR and **Appendix S** of this Final EIS/TEIR).

State and CNPS listed Species

Plant Species

Otay manzanita (*Arctostaphylos otayensis*) is the only state and/or CNPS listed plant species that is reported to occur within five miles of the project site and has potential habitat on and within the immediate vicinity of the project site. This species was not observed during the May 2, 2006 field assessment conducted by AES. Although the field assessment was not conducted during the blooming season for this plant, Otay manzanita is a perennial evergreen shrub and would have been identifiable to the genus level at a minimum at the time of the survey. No *Arctostaphylos* species were observed on the project site. This species does not occur in the project site.

Mammal Species

Two special-status mammal species are reported to occur within five miles of the project site and have suitable habitat on and within the immediate vicinity of the site: Dulzura pocket mouse (*Chaetodipus californicus femoralis*) and Stephens' kangaroo rat (*Dipodomys stephensi*). Stephens' kangaroo rat is federally listed and discussed in the Federal Species section. Neither of these special-status mammal species ~~were~~was observed during the May 2, 2006 field assessment, which was conducted during the reasonable identification period for these species.

Sensitive habitat

One sensitive habitat, the desert fan palm oasis, was identified within a five-mile radius of the site in the CNDDB query. This habitat type was not observed during the May 2, 2006 field assessment conducted by AES.

Federally Listed Species

Amphibian Species

One federally listed amphibian species, the arroyo toad (*Bufo californicus*) has the potential to occur within the Los Coyotes Reservation.

TABLE 3.4-3
STATE AND CNPS SPECIAL-STATUS SPECIES LIST FOR THE LOS COYOTES SITE

SCIENTIFIC NAME COMMON NAME	STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
PLANTS				
Arctostaphylos otayensis Otay manzanita	--/1B	San Diego County.	Chaparral and cismontane woodland/ metavolcanic; elevation 900-5575 feet.	January - March
Mammals				
Chaetodipus californicus femoralis Dulzura pocket mouse	CSC/--	Distributed in California from San Francisco Bay south to the border of Mexico and east to the edge of the Great Valley.	Inhabits coastal scrub, chamise-redshank and montane chaparral, sagebrush, annual grassland, valley foothill hardwood, valley-foothill hardwood-conifer, and montane hardwood habitats.	All year

STATUS CODES

STATE: California Department of Fish and Game
CE Listed as Endangered by the State of California
CT Listed as Threatened by the State of California
CSC California Species of Special Concern

CNPS: California Native Plant Society
List 1A Plants presumed extinct in California
List 1B Plants rare or endangered in California and elsewhere
List 2 Plants rare or endangered in California, but more common elsewhere

Source: U.S. Fish and Wildlife Service, 2006a; California Department of Fish and Game, 2003; CNPS, 2009.

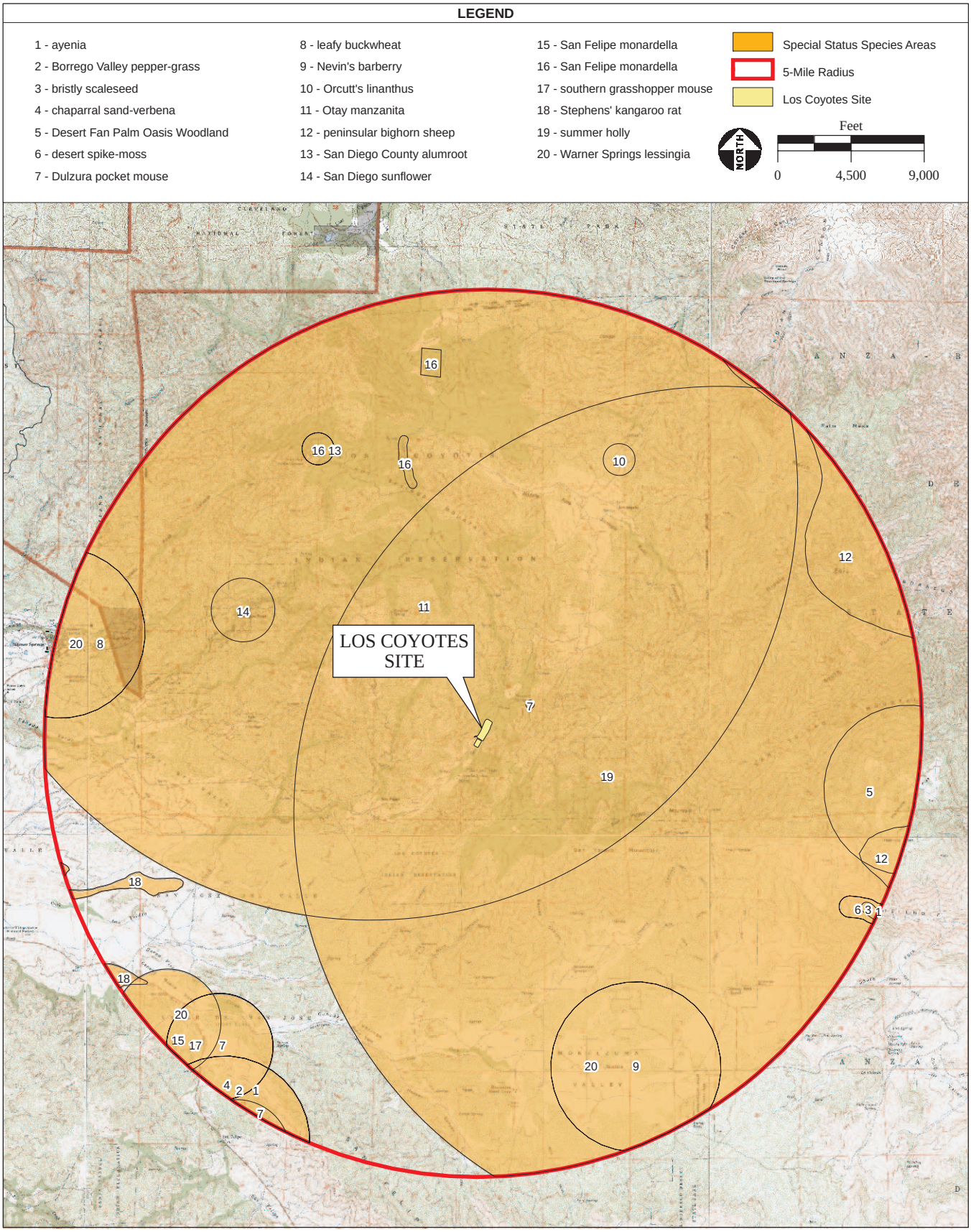
TABLE 3.4-4
FEDERAL SPECIAL-STATUS SPECIES LIST FOR THE LOS COYOTES SITE

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
ANIMALS				
Amphibians				
Bufo californicus arroyo toad	FE	Southern California and Baja California, Mexico.	Intermediate drainages and streams with minimal current or shallow, gravelly pools that persist until at least July.	March to July
Birds				
Empidonax traillii extimus Southwestern willow flycatcher	FE	Breeding sites range from California (south of the Santa Ynez River), New Mexico, the extreme southwest of Colorado, the extreme southern portions of Nevada and Utah, western Texas, and Baja California, del Norte, and Sonora, Mexico.	Dense riparian habitats along rivers, streams, or other wetlands.	May to July
Vireo bellii pusillus Least Bell's vireo	FE/CE/--	The entire range of the subspecies consists of the southwestern coastline of the United States in California below Santa Barbara, extending inland approximately to the edge of the Imperial Valley. The breeding range for this species encompasses greater Los Angeles and other metropolitan areas of southern California. The wintering habitat includes Baja California, Mexico, and the western coastline of northern and central Mexico.	Occupies dense, low, shrubby vegetation, generally early ~~successional~~succession stages in riparian area, brushy fields, young second-growth forest or woodland, scrub oak, coastal chaparral, and mesquite brushlands, often near water in arid regions. The most critical structural component of the Least Bell's Vireo breeding habitat in California is a dense shrub layer, 0.6-3.0 m above ground.	May to August
Mammals				
Dipodomys stephensi Stephens' kangaroo rat	FE	The San Jacinto Valley from ~~Riveside,~~ Riverside and San Diego Counties, and south to the vicinity of Vista.	Annual and perennial grassland, including buckwheat, chamise, brome grass, and filaree, or coastal scrub or sagebrush with sparse canopy cover.	All year.

STATUS CODES

FEDERAL: U.S. Fish and Wildlife Service and National Marine Fisheries Service
FE Listed as Endangered by the Federal Government
FT Listed as Threatened by the Federal Government
FC Federal candidate for listing

Source: USFWS, 2006a; USFWS 2010.



SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E, San Bernadino Baseline & Meridian; California Natural Diversity Database, 2005; AES, 2011

Figure 3.4-7

Special Status Species Within 5 Miles of the Los Coyotes Site

Arroyo Toad (*Bufo californicus*)

Federal Status – Endangered

The arroyo toad is nocturnal and buries itself in soil within the streambed during the day. Adult toads emerge at night between late March and early July. Small to intermediate drainages and streams provide habitat for the arroyo toad. Optimal habitat includes streams with minimal current or shallow, gravelly pools that persist until at least July. The arroyo toad is found in isolated populations in southern California and Baja California, Mexico.

The nearest recorded occurrence of arroyo toad to the project site is approximately 8.5 miles northwest of the project site, at the Indian Flats campground, near San Luis Rey River, and was recorded in 1991 (CDFG, 2003). Critical habitat for this species does exist approximately 8 miles to the west of the project site, in the Warner Springs quadrangle (USFWS, 2006b). No critical habitat for arroyo toad exists within the project site. The portion of San Ysidro Creek that runs within and adjacent to the project site does not provide suitable breeding habitat for arroyo toad because the drainage does not have persistent water flow or pools. Small pools and wetland area that could potentially be suitable for arroyo toad breeding were observed in and adjacent to San Ysidro Creek approximately 200 yards downstream of the project site. If arroyo toads occur in these pools and wetland area, they may infrequently occur on the project site, as arroyo toads can range up to a kilometer from their breeding areas during the nonbreeding season. The arroyo toad was not observed during a May 2006 field survey conducted by AES.

Bird Species

Two federally listed bird species, the Southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*) have the potential to occur within the Los Coyotes Reservation.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Federal status – Endangered

The Southwestern willow flycatcher is one of four, possibly five willow flycatcher subspecies. ~~The breeding site of the~~ Southwestern willow flycatcher typically nests and forages ~~consists of~~in dense riparian habitat along rivers, streams, or other wetlands. Vegetation that may be present at the breeding site includes willows (*Salix* sp.), seepwillow (*Baccharis* sp.), tamarisk and Russian olive (*Elegnus angustifolia*), or other shrubs or medium sized trees. The Southwestern willow flycatcher is most active between approximately one hour prior to sunrise and 10 am. Breeding and nesting takes place between May and July. Breeding sites for this bird occur in California (south of the Santa Ynez River), New Mexico, the extreme southwest of Colorado, the extreme southern portions of Nevada and Utah, western Texas, and Baja California, del Norte, and Sonora, Mexico.

The nearest critical habitat for the Southwestern willow flycatcher to the project site is approximately 8 miles to the southwest (USFWS 2006b). The San Diego Management Unit, within the coastal California Recovery Unit for the Southwestern willow flycatcher exists near Lake Henshaw, approximately 9 miles from the project site (USFWS, 2002b). No suitable nesting or foraging habitat for this species exists on the Los Coyotes site. A patch of suitable nesting habitat occurs approximately one-quarter mile southwest (downstream) of the site, along San Ysidro Creek. The habitat consists of approximately one acre of willow thicket adjacent to San Ysidro Creek. At this location, the creek had small pools of water

during a May 2, 2006 field survey. The habitat meets criteria for consideration as willow flycatcher habitat; however, it is a small and relatively isolated patch of habitat. Furthermore, the closest CNDDB record is approximately 25 miles from the site. The southwestern willow flycatcher was not observed during field surveys conducted by AES in May 2006. The May field visit was performed during the nesting period for this bird. This species is not expected to occur at the Los Coyotes site.

Least Bell's Vireo (*Vireo bellii pusillus*)
Federal Status – Endangered
The least Bell's vireo is a summer resident of cottonwood-willow forest, oak woodland, shrubby thickets, and dry washes with willow thickets at the edges. It was formerly a common and widespread summer resident below about 2,000 ft in elevation in the western Sierra Nevada, throughout Sacramento and San Joaquin valleys, and in the coastal valleys and foothills from Santa Clara County south. Currently, its breeding range is in Southern California, with large populations in Riverside and San Diego counties and smaller populations in Santa Barbara, Ventura, and San Diego counties, and in northern Baja California. Thickets of willow and other low shrubs, preferably with water nearby, provide foraging habitat and~~,~~ afford nesting and roosting cover.

The project site is not within critical habitat for the least Bell's vireo. Critical habitat exists approximately 7 miles to the northeast of the project site (USFWS, 2006b). The Los Coyotes site is not within any of the 14 population/metapopulation units described in the 1998 Draft Recovery Plan for the least Bell's vireo (USFWS, 1998). The closest documented occurrence of the least Bell's vireo is approximately 5.5 miles east of the Los Coyotes site, and several occurrences are documented within 10 miles of the site. A relatively small amount of willow thicket exists approximately .25 miles southwest (downstream) of the site along San Ysidro Creek. This willow thicket, however, does not represent suitable nesting or foraging habitat for the bird. The least Bell's vireo generally nests below an elevation of approximately 2,000 feet amsl. The nearby occurrences are all below an elevation of 3,000 feet. The Los Coyotes site is located at approximately 4,400 feet amsl, considerably higher than typical nesting habitat for this bird. The least Bell's vireo was not observed during field surveys conducted by AES in May 2006. This species is not expected to occur at the Los Coyotes site.

Mammal Species

One federally listed mammal species, the Stephens' kangaroo rat (*Dipodomys stephensi*) has the potential to occur on the Los Coyotes Reservation.

Stephens' Kangaroo Rat (*Dipodomys stephensi*)
Federal status – Endangered
Habitat for the Stephens' kangaroo rat includes annual and perennial grassland, including buckwheat, chamise, brome grass, and filaree, or coastal scrub or sagebrush with sparse canopy cover. The Stephens' kangaroo rat is nocturnal and active year round. Breeding occurs from April to June. This species inhabits the San Jacinto Valley from the City of Riverside, Riverside County, south to the vicinity of Vista, San Diego County.

No critical habitat has been designated for Stephens' kangaroo rat. Record of a population of this species exists approximately four miles south west of the site (CDFG, 2003) and an additional population exists

at Warner Ranch, approximately six miles west of the site. The Central Conservation Planning Area, as listed in the 1997 Draft Recovery Plan for this species, is west of the site, near Lake Henshaw (USFWS, 1997). Suitable habitat for the Stephens' kangaroo rat exists on-site. This rodent was not observed during field surveys conducted by AES in May 2006.

3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of cultural resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.5.1 SETTING

Prehistory

Barstow Site Vicinity

The earliest accepted archaeological manifestation in the Far West is the Fluted Point Tradition (FPT), which is typified by a highly specialized flaked stone technology. The FPT, dated to the terminal Pleistocene (ca. 12,000 – 10,000 Before Present [B.P.]), is often associated with the hunting of large, now extinct, megafauna, although recent investigations suggest a more broad-spectrum subsistence strategy focused on ancient pluvial lakes and marshes. Artifacts related to the FPT have also been found in association with streams, springs, ponds, river terraces, and high mountain passes in California. Archaeological sites in California that have yielded artifacts related to the FPT include Tracy Lake (Beck 1971), Ebbetts Pass (Davis and Shutler 1969), Borax Lake (Harrington and Simpson 1948; Meighan and Haynes 1970), Tulare Lake (Riddell and Olsen 1969), and China Lake (Davis 1978).

During the early Holocene epoch, the FPT gave way to the Western Pluvial Lakes Tradition (WPLT) (Bedwell 1973). As the name suggests, the WPLT reflects a settlement and subsistence strategy focused on the large lakes fed by receding glaciers west of the Rocky Mountains. In California, a number of regional appellations have been given to archaeological cultures related to the tradition, most notably the Lake Mojave Complex and the San Dieguito Complex. The following prehistoric cultural history of the Mojave Desert is based on Warren (1984:409-430).

The Lake Mojave Period (8,000 to 5,000 B.C.) followed the FPT and reflects a more generalized adaptive strategy, which was first identified on the margins of the former Lake Mojave and associated environs. The temporally diagnostic artifacts associated with this period include Lake Mojave or Silver Lake projectile points that are found primarily in association with the shorelines of former pluvial lakes. Hunting and utilization of lacustrine resources presumably formed the subsistence base.

The Pinto Period (5,000 to 2,000 B.C.) follows the Lake Mojave Period and is characterized by the presence of Pinto Series projectile points. The Pinto Period likely reflects an occupation of the desert after a period of lake desiccation. This period of drying is related to the use of stream and spring habitats. Pinto Period sites appear to be a broadly generalized cultural pattern developed in response to the disappearance of lakes as a result of a change to a more arid climatic regime. It is possible that the Pinto Period developed directly from the Lake Mojave Period and ushered in the Archaic (a more generalized subsistence economy) in the Mojave Desert.

The Gypsum Period (2,000 B.C. to 500 A.D.) is marked by the presence of Elko Series projectile points. Very little is known regarding the subsistence base or social organization of Gypsum groups as few sites

dating from this period have been excavated. Archaeological remains dating from the Gypsum Period are relatively uncommon in the Mojave Desert, signifying that sites from this period are rare or underrepresented in the known archaeological record. Sites that have been identified from this period reflect a proliferation of manos and metates, representing a shift toward a hard seed economy and perhaps influences from the Southwest, signaling increased trade.

The Saratoga Springs Period (A.D 500 to 1200) is marked by Rose Spring and Eastgate Projectile Points. Rose Spring projectile points are similar in form to Elko Series points but are smaller, and signal the introduction of the bow and arrow. Sites from this period are some of the most common found in the Mojave Desert and represent a more diverse economic base, larger populations, and a highly mobile lifestyle. As well, this time marks the beginning of the Hakataya influence in the Southern Mojave Desert.

The Protohistoric Period (A.D. 1200 to Contact) is associated with Desert side-notched projectile points, increased reliance on hard-seed economies, and extensive trade networks. Southwestern pottery, including Colorado Buff Wares and locally produced Tizon Brown Ware, and other trade goods such as shell beads from the California coast are found throughout sites that date to this period. This period is assumed to reflect the late prehistory of the ethnographic groups inhabiting the region.

Los Coyotes Site Vicinity

Recent archaeological discoveries at Lake Elsinore and Domenigoni Valley place humans in this part of southern California as early as 8,000 to 9,000 years ago. Over the years there have been many sequences and chronologies proposed for the prehistoric cultural history of inland southern California, but at the present time there is not enough archaeological data to fine-tune these sequences into units any smaller than a few, very broadly defined periods. The various existing schemes are summarized by Grenda (1993) and Moratto (1984), who offer the following basic timeline:

9,000 to 8,000 B.P.	San Dieguito Period
8,000 to 1,500 B.P.	Millingstone/Pauma/Archaic/Encinitas Tradition
1,500 to Contact	Late Prehistoric/ San Lius Rey Complex/Luiseño Period

The San Dieguito Complex consists of a pre-millingstone cultural tradition with artifacts that include leaf-shaped lithic knives, foliate to ovoid bifaces, foliate and short-bladed shouldered points, crescents, choppers, core hammers, and a variety of scrapers. The lack of ground stone artifacts suggests a greater emphasis on big-game hunting than hard seed processing.

The Puama Complex/Encinitas Tradition represents a diversification in the resource base. Assemblages represent a seed-grinding, small-game-hunting, shellfish-collecting culture as contrasted with the non-millingstone San Dieguito Complex. Artifacts include a large number of basined millingstones, unshaped manos, a preponderance of flaked cobble tools, Pinto-like projectile points, and, occasionally, perforated stones. Burials tend to be flexed, with heads to the north, under stone cairns.

Finally, the San Luis Rey Complex and Luiseño Period, or Late Prehistoric Period, represents a cultural tradition directly correlated with specific Hokan-speaking groups and shift to intensified acorn processing

technology and diversification of the resource base. Features and artifacts from this period include cremations, bedrock mortars, millingstones, Western Triangular Cluster projectile points (Justice, 2002), bone awls, pottery vessels, stone and shell ornaments, and a proliferation of red and black pictographs. Protohistoric components of this complex include such non-aboriginal items as metal knives and glass beads.

Ethnography

Barstow Site Vicinity

At the time of Euroamerican contact, the Barstow area was occupied by the Vanyume. ~~Given the harsh, arid territory they inhabited, the Vanyume were few in number and relatively impoverished relative to other southern California groups.~~ Occupying the northern reaches of the Mojave River, their neighbors included the Serrano to the south and the Kawaiisu to the northwest. The Vanyume spoke a language belonging to the Takic Family which they shared in common with other regional Native groups such as the Serrano, Cupeño, Cahuilla, and Kitanemuk (Bean and Smith, 1978:570).~~While some observers in the past have grouped the Vanyume within the Serrano group, Kroeber (1925:614) concludes that they represent a distinct, politically autonomous population related to other regional groups, such as the Serrano, Cupeño, Cahuilla, and Kitanemuk, by trade, proximity, and inter-intelligible language. The aforementioned groups all belong to the Takic language family (Bean and Smith, 1978:570).~~ While the~~The~~ Vanyume were linked to their closest neighbors by trade, proximity, and by sharing an inter-intelligible language ~~also distinguished from neighboring Serrano groups by their~~they also enjoyed amicable relations with the Mohave and Chemehuevi~~, who were generally hostile towards the Serrano~~. (Kroeber 1925:614).

Few primary sources for the Vanyume exist in the literature, primarily as a result of the rapid and near complete decimation of the group between 1820 and 1834, when they were sent to missions and asistencias by Spanish missionaries. After the mission program was terminated by secularization in 1834 the only known survivors of the Vanyume returned to the Upper Mojave River where they intermarried with other neighboring Native groups (Kroeber 1957 and Stewart 1969). Additional information on the Vanyume and their neighbors can be found in Benadict (1924 and 1926), Kroeber (1925), Strong (1929), and Drucker (1937) and Stewart (1969).~~.~~

While very little has been written concerning the nature of Vanyume settlement and subsistence patterns, their general adaptive strategies would have been ~~severely~~ limited by their ~~extreme~~ environs and were likely analogous to that of other Mojave Desert dwellers. Remarking on the observations made by a Franciscan missionary in the latter half of the 18th century, who referred to the Vanyume peoples by the name "Beñemé"~~,~~; Kroeber notes, "~~A~~at the lowest village [Father Francisco] Garcés found some bean and screw mesquite trees and grapevines; but the inhabitatants had nothing but tule roots to eat. They were described as naked~~, and a cold rain prevented their going hunting~~; but they possessed blankets of rabbit and otter fur. Their snares were made of wild hemp. At one of the upper villages there were small game and Father Garcés describes being served acorn porridge ~~…~~(Kroeber, 1925:615). Access to acorn as a resource, ~~-~~in the desert, speaks not only to the mobility of the Vanyume but also to the trade access they enjoyed to the San Bernardino and San Gabriel mountain ranges, via the Mojave River.~~"~~ However, as previously noted, Garcés' account would have been after the effects of Missionization had already been

realized by the Native inhabitants of the region. Therefore, it is not clear what the lifeways of the Vanyume where prior to European contact. Yet, ~~W~~we may surmise, that they were highly mobile, and based on the resources available in their territory, that their diet included deer, mountain sheep, rabbit, waterfowl, acorns, mesquite, piñon nuts, and the fleshy bulbs of a variety of cacti.

Los Coyotes Site Vicinity

The Los Coyotes Reservation is located within territory that was occupied by the Cupeño-speaking Native Americans at their border with the mountain Cahuilla (Bean and Smith, 1978:588~~;~~). Being one of the smallest linguistic groups in southern California, the Cupeño occupied an approximately 10-mile area that included the mountains at the headwaters of the San Luis Rey River and encompassed the broad open valley of San Jose de Valle. The Cahuilla, their neighbors to the north, east, and south, occupied the valleys, passes, deserts, and mountains from San Bernardino to the Salton Sea. Both the Cupeño and Cahuilla language belong to the Cupan subgroup of the Takic family of Uto-Aztecan. Prior to 1902 the Cupeño occupied two permanent villages, *Kupa*, at the base of Hot Springs Mountain, and *Wilakalpa* (Bean and Smith, 1978:588). Although united by marriage, trade, and social intercourse, the two villages were politically independent.

The basic social unit of the Cupeño was the village community, or "tribelet" (Kroeber, 1925). Tribelets were organized by clan and were autonomous from each other. Dialects might encompass several tribelets and territories outside the village community were vaguely defined. The immediate area surrounding a village was owned in common by the headman's lineage. Clans were bound by social, religious, and territorial ties, but each maintained its distinctiveness, had its own gathering areas, and had its own leader.

Villages were often located near major drainages, inhabited mainly in the winter as it was necessary to go out into the higher elevations or west to the coast to establish temporary camps during food gathering seasons (i.e. spring, summer, and fall). Villages typically consisted of several conical, partially subterranean thatched houses, numbering from four or five to several dozen in larger villages, each house containing a single family of three to seven people. Round, semi-subterranean, earth-covered sweathouses were important for purification and curing rituals. A ceremonial structure, the *wamkis*, was in a centrally located area within the village that was enclosed by circular fencing (Bean, 1978:578).

The Cupeño economy was based on fishing, hunting, and gathering, with tribelet members moving to various places within their territory to take full advantage of different resources as they became available (Bean and Smith, 1978:578). Game, such as deer, rabbit, and waterfowl, was hunted either by the individual or in community drives. Also, the diversity of habitat produced a floral domain of great variety consisting of, among others, acorns, mesquite, piñon nuts, and the fleshy bulbs of a variety of cacti. Six varieties of acorns represented one of the most important staples of Cupeño subsistence and were particularly abundant within oak woodlands in interior valleys. Fire was used as a crop-management technique, as well as for communal rabbit drives. Some Cupeño tribelets defended their territory against trespassers, but land outside the village community was not considered privately owned (Bean and Smith, 1978). Individual material possessions were usually destroyed upon the death of an individual, so that the individual's spirit could take it all to the spirit world.

Historical Context

Barstow Site Vicinity

The first Euroamerican travel through the Barstow area occurred in 1776 with the Spanish Franciscan priest, Francisco Garces. His party was in search of a practical travel and trading route from southern Arizona and New Mexico to the missions in California (Hoover *et al*., 1990:304). By 1847, most of the Euroamerican traffic occurred over the "Old Spanish Trail," which forked northward from the Mojave Road just a few miles east of the modern town of Barstow. The early travelers were a mix of mission escapees, merchants, explorers, trappers, raiders, and immigrants.

In the early 1860s, Euroamerican pioneers began settling along the Mojave River, deriving a living from the road traffic. They established way stations and ranches that provided travelers with the necessary supplies to make the difficult journey and protection from Indian hostilities. Even after the American occupation, raids on travelers by Indians and white raiders continued. One of the reasons settlement was deliberately encouraged in this area was the desire to discourage raiders from attacking the more densely inhabited areas (Hoover *et al*., 1990:30).

Though gold mining began in the early 1850s at the south end of Death Valley, large local developments did not start until the 1880s. The costly freight charges, crude mineral recovery methods, scarcity of water, and lack of local subsistence all conspired to delay significant development. However, in 1881 rich silver deposits were discovered and gave birth to the Daggett Mills, and Calico and Waterman mines. The wealth of these mines brought 3,500 people to the area, and Calico became one of the most prosperous camps of the great Southwest. Later, a dramatic drop in the price of silver le~~a~~d to the collapse of the silver boom and the virtual abandonment of the area (Hoover *et al*., 1990:314; City of Barstow, 2006a).

In 1853, shortly after the admission of California to the Union, the U.S. Congress authorized a program of exploration and surveys of the Southwest in anticipation of a railroad route from the Mississippi River to the Pacific Ocean. The desert portion of this route was finally built by Southern Pacific in 1883 when it completed the line from Mojave to Needles (Hoover *et al*., 1990:307; City of Barstow, 2006a).

San Bernardino County was organized in 1853 from territory that was at first part of Los Angeles and San Diego counties. The name comes from the Spanish for Saint Bernardine of Siena. The city of San Bernardino has always been the county seat (Gudde, 1990:330; Hoover *et al*., 1990:304).

In 1886, the California Southern, a subsidiary of the Atchison, Topeka & Santa Fe Railway Co., completed its line from National City near San Diego through the Cajon Pass to join the transcontinental line. The junction of the two lines, first known as Waterman Junction after the California Governor, was changed to Barstow in honor of William Barstow Strong, the Santa Fe Railway Co. president. Barstow's first building was a hotel-depot located on the south bank of the Mojave River (Gudde, 1990:27; City of Barstow, 2006a). Santa Fe became the main transportation link and employer within Barstow and the surrounding desert communities.

Barstow, like many of the surrounding desert communities, was slow to grow in its initial years. Originally located north of the railroad tracks, Barstow moved south and uphill in the mid 1920s as Santa

Fe repeatedly expanded its rail facilities. Later, as the state highway system started to develop, local businessmen lobbied officials to locate the intersection of Routes 66 and 91 near First Street, resulting in the construction of a huge overpass above the Santa Fe rail yards and the Mojave River bridge built in 1930 (City of Barstow, 2006a). As a result of continued rail developments, employment and services, Santa Fe was indirectly responsible for the present highway locations and the manner in which they converge in Barstow, as well as the later establishment of nearby military reservations in the 1940s. On September 30, 1947, Barstow was incorporated as a city.

Los Coyotes Site Vicinity

When the Spaniards first visited the nearby area of Agua Caliente, west of the project area, they found a large Cahuilla Indian Rancheria there. All the land surrounding the springs, later called Warner's Springs, including Los Coyotes Reservation, about 49,000 acres in all, later came under the joint control of Missions San Diego and San Luis Rey. These lands stayed in their possession until secularization and the subsequent confiscation of mission property in 1836 (Hoover *et al*., 1990:326). In 1844, Jonathan Trumbull Warner, an immigrant from Connecticut, laid claim to the land and became one of the first Americans to become an extensive landholder in California. The estate he built became a major stop for travelers along the Immigrant Trail. Warner Springs was to the south what Sutter's Fort was to the north. Cattle ranching dominated other agricultural activities and the development of the hide and tallow trade with the United States increased during the early part of this period. The Pueblo of San Diego was well established during this period and Native American influence and control greatly declined. The Mexican period ended when Mexico ceded California to the United States after the Mexican-American War of 1846-48.

Soon after American control was established, gold was discovered in California, which triggered a tremendous influx of Euroamericans that effectively ended much of the Spanish and Mexican cultural influence and eliminated what control Native Americans had retained. Few Mexican Ranchos remained intact because of land claim disputes. The homestead system also increased American settlement beyond the coastal plain.

Native Americans who lived in the former village of Kupa, within Warner's Ranch, were forcibly relocated to the Pala Reservation in 1902. The Los Coyotes Reservation was established in 1900 by an Act of Congress, and expanded to include Cleveland National Forest land by an Executive Order in 1914. Today this reservation is home to primarily Cahuilla people (California Dept. of Housing and Community Development, 1996).

3.5.2 REGULATORY FRAMEWORK

National Register of Historic Places Eligibility

The National Historic Preservation Act of 1966 (as amended through 2000) authorizes the National Register of Historic Places (NRHP), a program for the preservation of historic properties ("cultural resources") throughout the Nation. The eligibility of a resource for NRHP listing is determined by evaluating the resource using criteria defined in 36 C.F.R § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, and culture is

present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and

A. that are associated with events that have made a significant contribution to the broad patterns of our history;
B. that are associated with the lives of persons significant in our past;
C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. that have yielded, or may be likely to yield, information important to prehistory or history.

Unless a site is of exceptional importance, it is not eligible for listing in the NRHP until 50 years after it was constructed.

All properties change over time. Therefore, it is not necessary for a property to retain all its historic physical features or characteristics in order to be eligible for listing on the NRHP. The property must, however, retain enough integrity to enable it to convey its historic identity; in other words, to be recognizable to a historical contemporary. The NRHP recognizes seven aspects or qualities that, in various combinations, define integrity:

1. **Location** – the place where the historic property was constructed or the place where the historic event occurred.
2. **Design** – the combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting** – the physical environment of a historic property.
4. **Materials** – the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. **Workmanship** – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
6. **Feeling** – a property's expression of the aesthetic or historic sense of a particular period of time.
7. **Association** – the direct link between an important historic event or person and a historic property (National Park Service 1990).

To retain historic integrity a property will always possess several, and usually most, of these aspects. In order to properly assess integrity, however, significance (why, where, and when a property is important) must first be fully established. Therefore, the issues of significance and integrity must always be considered together when evaluating a historic property.

While most historic buildings and many historic archaeological properties are significant because of their association with important events, people, or styles (criteria A, B, and C), the significance of most prehistoric and historic-period archaeological properties is usually assessed under criterion D. This criterion stresses the importance of the information contained in an archaeological site, rather than its

intrinsic value as a surviving example of a type or its historical association with an important person or event. It places importance not on physical appearance but rather on information potential.

Based upon the findings of the cultural resources technical reports, the Lead Agency (Bureau of Indian Affairs (BIA)) makes a determination identified as a Finding of Effect. This determination is then forwarded to the State Historic Preservation Officer for concurrence. Given the fact that no cultural resources were identified within the project site, the BIA would reach a finding of No Historic Properties Effected. Upon SHPO concurrence with this finding the Section 106 process would be concluded.

3.5.3 PREHISTORIC AND HISTORIC RESOURCES – BARSTOW SITE

Records and Literature Search

Methodology

Prior to the field study, a records search was conducted at the San Bernardino Archaeological Information Center (SBIC) of the California Historical Resources Information System, which is housed at the San Bernardino County Museum, San Bernardino, California. The SBIC, an affiliate of the State of California Office of Historic Preservation (OHP), is the official State repository of archaeological and historical records and reports for San Bernardino County. Additional research was conducted using the resources on file at the AES Sacramento office.

The records search and literature review for this study were done (1) to determine whether known cultural resources had been recorded within or adjacent to the study area; (2) to determine whether known resources have been reported in archaeological, ethnographic, and historical documents and literature; and (3) to assess the likelihood of unrecorded cultural resources based on the distribution of nearby archaeological sites in relation to their environmental setting.

The records search area includes the Barstow project site and all areas within a 0.5 mile radius from the perimeter of the Barstow project site. Included in the review were the following inventory and databases: *California Inventory of Historical Resources* (OHP, 1976), *Five Views: An Ethnic Historic Site Survey for California* (OHP, 1988), *California Historical Landmarks* (OHP, 1990), *California Points of Historical Interest* (OHP, 1992), *Historic Properties Directory Listing for San Bernardino County* (OHP, 2006a), and the *National Register of Historic Places Index of Listed Properties* (NPS computer listing for February 2006). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings of the California Historical Landmarks and California Points of Historical Interest (through February 8, 2005) not found in the published versions.

Results

The records search found that no recorded prehistoric or historic cultural resources are located within the Barstow project site. Two cultural resources studies conducted within portions of the project site were identified. In 1980, a linear survey was conducted for the Bureau of Land Management that included the western portion of the project site. This survey resulted in the recording of 27 prehistoric resources and 3 historic-period resources. None of these were located on the Barstow project site (Sutton 1980). Far

Western Anthropological Research Group also conducted a linear survey as part of a gas pipeline alignment that ran through the western portion of the project site. They recorded an isolated cryptocrystalline flake (P-36-0061) just outside the southwestern boundary of the project area. However, no cultural resources were identified within the portion of the survey that included the Barstow project site (McGuire and Glover 1991).

In addition to the two studies mentioned above, three other cultural resources studies have been conducted within 0.5 miles. An extensive linear survey was conducted as part of a proposed Mojave pipeline corridor from Arizona to California that ran along the northern boundary of the project site (McGuire 1990). LSA Associates conducted a linear survey of the Lenwood Road extension that runs from Barstow past the western portion of the project site (Rosenthal and Padon, 1993). A series of parcels totaling 32 acres located 0.25 miles southwest of the project site was also surveyed (Parr 1996). None of these three studies identified any cultural resources adjacent to or within one-half mile of the project area.

One prehistoric archaeological site (CA-SBR-2289) has been recorded within one-half mile of the project site. This site consists of a lithic scatter containing chalcedony flakes, a scraper, and bifacial foliates (Stricler, 1970). No other archaeological sites have been recorded within a 0.5-mile radius of the project site.

Historic maps of the project area were consulted to identify any structures that were in the project area or evidence of past land uses. The 1931 GLO Plat and 1934 USGS Barstow depict a structure possibly in the northwest corner of the project site. The 1934 map also depicts a road bisecting the project site on a north-south axis.

Native American Heritage Commission Consultation

On March 27, 2006, the State of California Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American cultural resources in the study area (**Appendix G** of the Draft EIS/TEIR). On April 21, 2006, the NAHC responded indicating it has no knowledge of Native American sacred sites within the Area of Potential Effects (APE). However, the NAHC did provide a list of Native American individuals and groups for further consultation. Consultation letters were sent to these groups and individuals on May 15, 2006, and again on October 18, 2006. Follow-up phone calls were conducted with these individuals and groups during June 2006. To date, no response has been received from any of the individuals or groups contacted. Copies of correspondence are included in **Appendix G** of the Draft EIS/TEIR.

Field Survey

Methodology

An M.A.-level archaeologist conducted an intensive-level pedestrian survey of the 23.1-acre Barstow site on May 3 and 4, 2006 (AES, ~~2009a~~2012). The survey consisted of 15-meter-wide linear transects in an east-west direction throughout the project site. Surface visibility was considered excellent (90 percent) as the ground was only sparsely vegetated with creosote brush scrub. Cut banks along seasonal drainages and washes in the project site were examined for soil profiles and buried deposits. Numerous rodent

burrow backdirt piles, off-road trails, and road cuts were examined for indicators of buried archaeological deposits.

Results

No prehistoric or historic-period cultural resources were identified as a result of the survey. The remains of a former structure located near the far northeastern portion of the property were observed and found to be outside the project site of Alternative A and B. The remains include a housepad, concrete and asphalt fragments, a graded driveway, ~~various~~ structural debris, and several non-native ornamental trees. None of these remains (ferrous metal, plastics, modern window glass, and electrical wire) suggest any antiquity, and the trees were identified as being no more than 10 to 15 years old.

3.5.4 PALEONTOLOGICAL RESOURCES – BARSTOW SITE

Typologies and Formation Processes

The processes involved in the preservation of paleontological resources result in several types of remains. Factors affecting the persistence of paleontological resources vary between species, and broadly include geological formation processes (**Section 3.2**), climate, soil and rock chemistry, and organism morphology. Paleontological resources are discussed here as fossil remains, although other types of remains occur elsewhere.

Fossils are the remains of plants and animals embedded in layers of rock, which have retained some degree of their original characteristics over a long period of time. Remains are buried under layers of sediment, which under building pressure become sedimentary rock. Paleontological remains can be those of organism structure, such as skeletal parts, shell, tree trunks, pollen, endocasts or imprints, or they can be remnants of activity, such as footprints or tunnels of burrowing organisms. Soft tissues are less frequently fossilized, because they usually decay before fossilization processes take place. Since fossil remains occur in sedimentary rock formations, they tend to persist unless the rock has undergone significant changes. Fossils do not occur in metamorphic rock formations.

Fossils of considerable age may be subject to varying degrees of mineralization, at times resulting in the total replacement of original, organic matter by minerals. The agents of mineralization are most commonly composed of calcium carbonates such as calcite and aragonite, and silicates such as quartz, opal and chalcedony. Less common materials are iron disulfides such as pyrite and marcasite; limonite; sulphates, such as gypsum; phosphates, such as calcium phosphate and vivianite; and glauconite. These minerals are typically transported in minute quantities by seeping water, with aggregation over time.

Regional Characteristics

As noted in **Section 3.2**, the USGS and the California Division of Mines and Geology describe the geological profile of the Barstow site and vicinity as being comprised of lake and playa alluvium and terrace deposits, mostly non-marine in origin, and both unconsolidated and semi-consolidated; and Pliocene and/or Pleistocene sandstone, shale and gravel, loosely consolidated.

Database Search

The online database at the University of California Museum of Paleontology was consulted on April 12, 2006. While no records of paleontological finds exist on the Barstow site, three noteworthy specimen records within 13 miles of the site were found. In the uplands approximately 13 miles north of the Barstow site, a mammal specimen from the Miocene epoch was reported. Meanwhile, a record was found for Pleistocene mammal specimens approximately 10 miles southwest of the site. Additionally, a record of an unspecified invertebrate specimen was found associated with the highlands approximately seven miles southeast of the Barstow site.

Potential for Fossil Discovery

No records exist to indicate the presence of known paleontological resources on the Barstow site. Based upon the association of Pleistocene mammal specimens with elevations and geological environments similar to those of the Barstow site, a slight potential exists for subsurface deposits of Pleistocene mammals to be present.

Results

No Paleontological resources were identified as a result of the field survey of the Barstow site.

3.5.5 Prehistoric and Historic Resources – Los Coyotes Reservation

Records and Literature Search

Methodology

A records search was conducted at the South Coast Information Center (SCIC) of the California Historical Resources Information System, which is housed at San Diego State University, San Diego, California. The SCIC, an affiliate of the State of California Office of Historic Preservation (OHP), is the official State repository of archaeological and historical records and reports for San Diego County. Additional research was conducted using the resources on file at the AES Sacramento office.

The records search and literature review for this study were done (1) to determine whether known cultural resources had been recorded within or adjacent to the study area; (2) to determine whether known resources have been reported in archaeological, ethnographic, and historical documents and literature; and (3) to assess the likelihood of unrecorded cultural resources based on the distribution of nearby archaeological sites in relation to their environmental setting.

The records search area includes the Los Coyotes project site as well as additional areas within a 0.25 mile radius from the perimeter of the Los Coyotes project site. Included in the review were the following inventory and databases: *California Inventory of Historical Resources* (OHP, 1976), *Five Views: An Ethnic Historic Site Survey for California* (OHP, 1988), *California Historical Landmarks* (OHP, 1990), *California Points of Historical Interest* (OHP, 1992), *Historic Properties Directory Listing for San Diego County* (OHP, 2006b), and the *National Register of Historic Places Index of Listed Properties* (NPS computer listing for February 2006). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings of the

California Historical Landmarks and California Points of Historical Interest (through February 8, 2005) not found in the published versions.

Results

The review found that no prehistoric or historic-period cultural resources have been recorded within the APE; however, five prehistoric sites and one historic-period cultural resource have been recorded within the 0.25 mile radius of the records search. The prehistoric sites consist of bedrock mortar outcrops that have habitation debris associated with them. The historic-period resource consists of a rock and cement mortar water reservoir with a wooden frame roof (Pigniolo and Dieter, 2000).

Additionally, ~~T~~the review ~~also~~ found that portions of the APE have been previously studied for cultural resources. In 2002, Tierra Environmental Services (Pigniolo *et al*., 2002) conducted a survey as part of a campground hazardous fuel reduction project that included approximately 70 percent of the northern portion of the APE. Though seven cultural resources were identified as part of the study, none were located within the present APE. A linear survey has also been conducted of Los Coyotes Road (Pigniolo and Baksh, 2000~~2~~) that is included in the western portion of the APE as part of a road improvement project. Though several resources were identified along the road, none were located within the present APE.

Native American Heritage Commission Consultation

On March 27, 2006, the State of California NAHC was asked to review the Sacred Lands file for information on Native American cultural resources in the study area (**Appendix G** of the Draft EIS/TEIR). The NAHC responded on April 27, 2006 indicating they had no knowledge of Native American sacred sites within or adjacent to the project site. However, they did provide a list of Native American individuals and groups for further consultation. On May 24, 2006 consultation letters were sent to these individuals and groups. Follow-up phone calls were conducted with these individuals and groups during June 2006. Two response letters were received by AES and are included with copies of all consultation correspondence in **Appendix G** of the Draft EIS/TEIR**.**

Field Survey

Methodology

An M.A.-level archaeologist conducted an intensive pedestrian survey of the 19-acre project site on May 2, 2006 (AES, 2010~~09b~~). The survey consisted of 15-meter-wide linear transects in a north-south direction throughout the project site. Surface visibility was considered good (70 percent) as the ground was thinly vegetated and soils were exposed. Cut banks along San Ysidro Creek, a semi-permanent drainage, were examined for soil profiles and buried deposits. Numerous rodent burrow backdirt piles, off road trails, and road cuts were examined for indicators of buried archaeological deposits.

Results

No prehistoric or historic-period cultural resources were identified as a result of the survey. The remains of a former campground located northeast of the project site were observed. These included several

cinderblock outhouses, picnic tables, and portable latrines. None of these features appear to be of significant antiquity and are considered modern.

3.5.6 PALEONTOLOGICAL RESOURCES – LOS COYOTES RESERVATION

Regional Characteristics

As noted in **Section 3.2**, the California Division of Mines and Geology (CDMG) describes the region including the Los Coyotes site as comprised of a geological formation process, which began in the Jurassic and Late Cretaceous eras, wherein a series of volcanic islands off the coastline of today's San Diego region were associated with the formation of a granitic and gabbroic batholith beneath the region. Geological formations of this type are known to contain several varieties of paleontological resources.

Database Search

The online database at the University of California Museum of Paleontology was consulted on April 19, 2006. No records were found for specimens within 20 miles or less of the Los Coyotes site. The nearest recorded specimen was an unspecified Pliocene vertebrate at a locality known as Coyote Creek, approximately 23 miles northeast of the Los Coyotes site.

Potential for Fossil Discovery

No records exist to indicate the presence of known paleontological resources on the Los Coyotes site. Based upon the association of Pleistocene mammal specimens with elevations and geological environments similar to the Los Coyotes site, a slight potential exists for subsurface deposits of Pleistocene mammals to be present.

Results

No Paleontological resources were identified as a result of the field survey of the Los Coyotes site.

3.6 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

This section addresses the existing socioeconomic conditions of the Barstow and Los Coyotes sites and surrounding regions. The general and site specific profiles of socioeconomic conditions described in this chapter provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.6.1 SOCIOECONOMIC CHARACTERISTICS OF SAN BERNARDINO COUNTY (BARSTOW SITE)

Population

Regional

As shown in **Table 3.6-1**, the population of San Bernardino County as of January 1, 2010 was approximately 2,073,149 people. The majority of the regional population resides in the southwest portion of San Bernardino County within proximity to Los Angeles. San Bernardino County has an incorporated population of approximately 1,776,865 people and an unincorporated population of approximately 296,284 people. The 2010 population of the City of Barstow was approximately 24,281 or 1.2 percent of San Bernardino County's total population. The closest city, Victorville, is approximately 25 miles southwest, and the City of San Bernardino is approximately 65 miles southwest.

TABLE 3.6-1
BARSTOW SITE REGIONAL POPULATION

Location	Population		
	2000	2005	2010
State of California	33,873,086	36,676,931	38,648,090
San Bernardino County	1,710,139	1,945,835	2,073,149
Unincorporated County	292,857	302,121	296,284
City of Barstow	21,119	23,646	24,281
Source: California Department of Finance, 2010.			

Population Trends

The population of San Bernardino County grew from 1,710,139 people in 2000 to 1,945,835 people in 2005, an increase of approximately 13.8 percent. Between 2005 and 2010, San Bernardino County's population has expanded to approximately 2,073,149 people, an increase of about 6.5 percent. From 2000 to 2005, the unincorporated population of San Bernardino County increased by approximately 3.2 percent. From 2005 to 2010, the unincorporated population decreased by 1.9 percent to approximately 296,284 people. The population of Barstow increased by 11.9 percent when the number of residents increased from 21,119 ~~residents~~ in 2000 to 23,646 in 2005. Between 2005 and 2010 Barstow saw a population increase of approximately 635 residents, or 2.7 percent. Overall, the state has experienced

approximately 14 percent growth since 2000; whereas San Bernardino County has experienced an approximately 21 percent growth.

Housing

In January 2010, California was estimated to have approximately 13,591,866 housing units, of which approximately 801,723 or 5.90 percent were vacant. In the same month, compared to the State of California, San Bernardino County had roughly twice the percentage of vacant units, and Barstow had almost three times the percentage of vacant units. As shown in **Table 3.6-2**, in January 2010 there were estimated to be 693,712 housing units in San Bernardino County, of which 11.58 percent were vacant (DOF, 2010). The unincorporated areas of San Bernardino County were estimated to have 130,266 units, of which 28.31 percent were vacant. Barstow had 10,160 housing units, of which 17.10 percent were vacant. Between 2000 and 2010, both the City of Barstow and the County experienced steady housing growth. Based on the information presented in **Table 3.6-2**, it was determined that the total number of housing units increases annually by approximately 1.45 percent, while the percentage of vacant units tends to decrease annually by approximately 0.2 percent.

TABLE 3.6-2
BARSTOW SITE REGIONAL HOUSING

Location	2000		2005		2010	
	Total Units	% Vacant	Total Units	% Vacant	Total Units	% Vacant
State of California	12,214,550	5.83	12,941,231	5.85	13,591,866	5.90
San Bernardino County	601,369	12.10	645,394	11.74	693,712	11.58
Unincorporated County	126,863	28.03	128,279	27.55	130,266	28.31
City of Barstow	9,153	16.45	9,756	16.78	10,160	17.10
Source: California Department of Finance, 2010.						

Employment

As shown in **Table 3.6-3**, San Bernardino County had approximately 870,800 people in its labor force and a 14.8 percent unemployment rate in March 2010. Barstow had approximately 10,800 people in its labor force and an 18.3 percent unemployment rate in March 2010. The labor force is generally defined as employed workers and unemployed workers actively looking for work. Compared to San Bernardino County unemployment rates, Barstow was 3.5 percent higher in March 2010; and compared to State unemployment rates, Barstow was 5.3 percent higher in March 2010.

In 2009, San Bernardino County had a labor force of 864,290 people, of which 13.0 percent (112,660 people) of the labor force was unemployed (Bureau of Labor Statistics, 2009). In 2009, the U.S. unemployment rate averaged 9.3 percent; lower than the unemployment rate in San Bernardino County. Since 2000, the labor force in San Bernardino County has increased by an average rate of 1.5 percent each year. According to the Council of Economic Advisers, it is projected that the U.S. will observe an approximate 6.5 percent unemployment rate in 2014 (Council of Economic Advisers, 2010).

The largest industries in Barstow, which account for approximately 68 percent of the labor force, are: retail trade; transportation, warehousing, and utilities; educational, health, and social services; arts, entertainment, recreation, accommodation, and food services, and public administration (U.S. Census Bureau, 2000).

TABLE 3.6-3
BARSTOW SITE REGIONAL LABOR FORCE ESTIMATES (MARCH 2010)

Location	Labor Force	Unemployed	Unemployment Rate
State of California	18,317,000	2,381,000	13.0
San Bernardino County	870,800	128,900	14.8
City of Barstow	10,800	2,000	18.3

Notes: Not Seasonally Adjusted.
Source: EDD, 2010.

Income

The median household income of San Bernardino County in 2008 was $54,768 (U.S. Census Bureau, 2008). Barstow had a median household income less than the County at $35,069 in 1999, which is the most current data available for Barstow as of June 2010 (U.S. Census Bureau, 2000). The median household income of San Bernardino County was 10.2 percent below the median household income for California, which was $61,017 in 2008 (U.S. Census Bureau, 2008).

Property Taxes

The Barstow site is located on the ~~four~~ three San Bernardino County tax parcels 0428-171-66, 0428-171-67, and 0428-171-68. The San Bernardino County Assessor's office has records of the value of each parcel in 2010. From these records, the total appraised value for all three parcels in 2010 was $550,731, and the total property tax value for all three parcels in 2010 was approximately $6,634 (San Bernardino County, 2011). A portion of the property taxes collected by the County are distributed to local districts and the City of Barstow to fund public services.

Crime

Table 3.6-4 shows crimes reported by the Barstow Police Department (BPD) compared to California including robbery, aggravated assault, murder, forcible rape, burglary, larceny, and motor vehicle theft in 2005, which represents the most recent data available.

TABLE 3.6-4
BARSTOW 2005 CRIME RATE PER 100,000 PEOPLE

Area	Population Coverage	Robbery	Aggravated Assault	Murder	Forcible Rape	Burglary	Larceny	Motor Vehicle Theft
Barstow Police Department	23,684	291.3	840.2	4.2	88.7	1,287.8	2,081.6	1,068.2
California	36,132,147	176.1	317.3	6.9	26.0	693.3	1,916.5	712.8

Source: Federal Bureau of Investigation, 2006.

Crime rates per 100,000 people reported by the BPD in 2005 were higher than California. It is important to note that rates are presented as crimes per 100,000 people for comparison purposes. As shown, the population covered by the BPD for these statistics is 23,684. Therefore, the actual number of crimes for each category reported by the BPD in 2005 is less than one quarter the number shown. Murder was the only category that had a greater rate of occurrence in California than the BPD. For the remaining categories the rate reported by the BPD was greater than California, but similar larceny rates existed for the two areas. The majority of all crimes reported by the BPD were categorized as larceny. Larceny for these statistics is considered the unlawful taking, carrying, leading, or riding away of property from the possession of another, except for motor vehicle theft (Federal Bureau of Investigation, 2006).

Schools

The Barstow Unified School District (BUSD) serves an area of approximately 330 square miles including the City of Barstow and the communities of Lenwood, Hodge, and Hinkley. The school district consists of eight elementary schools, one intermediate school, two middle/junior high schools, one senior high school, one continuation high school, and one adult school. Enrollment in the BUSD has increased by 0.8 percent over the past decade from 6,720 students in 2000/2001 to 6,774 students in 2008/2009. The average class size in the BUSD has decreased over the past decade from 27.5 in 2000/2001 to 26.0 in 2008/2009, a 5.4 percent decrease. The student to teacher ratio for the 2008/2009 school year, 21.1:1, was slightly greater than that of California (20.9:1) (Ed-Data, 2010). Approximately 57.2 percent of the enrolled students receive free or reduced meals. Developer fees within the City of Barstow contribute to funding for permanent classroom facilities. Other financial burdens of the District due to growth are met primarily through property taxes and tax increment funds from the Redevelopment Agency (City of Barstow, 1997).

Lenwood Elementary School is the closest elementary school to the Barstow site, located approximately three miles to the northwest. Lenwood Elementary School oversees grades K-5. The school has a total enrollment of 330 students and a staff of 19 teachers, resulting in a student to teacher ratio of 17.3:1. Barstow Junior High is the closer of the two middle/junior high schools to the Barstow site, located approximately five miles to the northeast. The school has 973 students enrolled in grades 7-8 and a staff of 42 teachers, resulting in a student to teacher ratio of 23.1:1. Barstow High School, grades 9-12, is located approximately six miles northeast of the Barstow site. The school has a total enrollment of 1,843 students and a staff of 75 teachers, resulting in a student to teacher ratio of 24.9:1

The Barstow Community College District serves 12,000 square miles including the City of Barstow and communities of Yermo, Dagget, Newberry Springs, Hinkley, and Baker. The Barstow College is located at 2700 Barstow Road and is accredited by the California Department of Education and United States Department of Education. Degree programs result in granting of either an Associate in Arts or Associate in Science degree.

3.6.2 SOCIOECONOMIC CHARACTERISTICS OF SAN DIEGO COUNTY (LOS COYOTES SITE)

Population

Regional

San Diego County's January 2010 population was approximately 3,224,432 people (**Table 3.6-5**). The population in unincorporated areas of San Diego County accounted for 15.6 percent of the total county population in 2010. The City of San Diego (excluding contiguous cities), which is located in the southwestern portion of the county, accounted for approximately 42.6 percent of the total population. The Los Coyotes site is located in the northeastern portion of the county, relatively isolated from the substantial metropolitan population of San Diego.

TABLE 3.6-5
LOS COYOTES SITE REGIONAL POPULATION

Location	Population		
	2000	2005	2010
State of California	33,873,086	36,676,931	38,648,090
San Diego County	2,813,833	3,039,424	3,224,432
Unincorporated County	442,832	471,732	503,320
Source: California Department of Finance, 2010.			

Population Trends

The population of San Diego County grew from 2,813,833 in 2000 to 3,039,424 in 2005, an increase of 8.0 percent. Between 2005 and 2010, San Diego County's population increased 6.1 percent to 3,224,432. The unincorporated population of San Diego County grew by 11.1 percent from 2000 to 2005. From 2005 to 2010, the unincorporated population of San Diego County grew by 6.6 percent. The growth rate of San Diego County was marginally less than that of the State from 2000 to 2005, and marginally greater from 2005 to 2010.

Housing

As shown in **Table 3.6-6**, in January 2010 there were 1,154,228 housing units in San Diego County, of which 4.4 percent were vacant. The unincorporated portions of San Diego County were estimated to have 167,104 housing units, of which 6.19 percent were vacant. In 2010 the State was estimated to have 13,591,866 housing units, of which 5.9 percent were vacant. From 2000 to 2010, the percentage of vacant units in San Diego County has been less than the State.

Employment

As shown in **Table 3.6-7**, in March 2010 San Diego County had a labor force of approximately 1,567,700 and an unemployment rate of 11.0 percent. The unemployment rate of San Diego County was less than the State in March 2010, which had an unemployment rate of 13.0 percent.

TABLE 3.6-6
LOS COYOTES SITE REGIONAL HOUSING

Location	2000		2005		2010	
	Total Units	% Vacant	Total Units	% Vacant	Total Units	% Vacant
State of California	12,214,550	5.83	12,941,231	5.85	13,591,866	5.90
San Diego County	1,040,149	4.37	1,105,439	4.42	1,154,228	4.41
Unincorporated County	152,910	5.94	159,277	6.34	167,104	6.19
Source: California Department of Finance, 2010.						

TABLE 3.6-7
LOS COYOTES SITE REGIONAL LABOR FORCE (MARCH 2010)

Location	Labor Force	Unemployed	Unemployment Rate (%)
State of California	18,317,000	2,381,000	13.0
San Diego County	1,567,700	172,300	11.0
Notes: Not Seasonally Adjusted. Source: EDD, 2010.			

In 2004 the largest industry in San Diego County, comprising 19 percent of the labor force, was educational services, health care, and social assistance; the next largest, comprising 13 percent of the labor force, was professional, scientific, management, administrative and waste management services; comprising 12 percent was retail trade; comprising ten percent was arts, entertainment, recreation, accommodation, and food services; comprising nine percent was manufacturing; and comprising eight percent was finance, insurance, real estate and rental and leasing.

Income

The median household income of San Diego County in 2008, which represents the most current data available, was $62,820 (U.S. Census Bureau, 2008), which was slightly higher than the median household income for California, which was $61,017 in 2008.

Property Taxes

Since the Los Coyotes site is currently tribal land, the land is not subject to property tax payments.

Crime

Table 3.6-8 shows crimes reported by the SDCSD compared to California including robbery, aggravated assault, murder, forcible rape, burglary, larceny, and motor vehicle theft in 2005, which represents the most current data available. Crime rates per 100,000 people reported by the San Diego County Sheriff's Department (SDCSD) in 2005 were lower than California. For each category California reported a greater rate than the SDCSD. The majority of all crimes reported by the SDCSD were categorized as larceny (Federal Bureau of Investigation, 2006).

TABLE 3.6-8
SAN DIEGO COUNTY 2005 CRIME RATE PER 100,000 PEOPLE

Area	Population Coverage	Robbery	Aggravated Assault	Murder	Forcible Rape	Burglary	Larceny	Motor Vehicle Theft
San Diego County Sheriff's Department	457,895	59.0	266.4	2.8	18.8	539.2	1,010.9	455.1
California	36,132,147	176.1	317.3	6.9	26.0	693.3	1,916.5	712.8
Source: Federal Bureau of Investigation, 2006.								

Schools

The Warner Unified School District (WUSD) serves an area of approximately 432 square miles in rural northeast San Diego County, including the Santa Ysabel and Los Coyotes Indian Reservation (WUSD, 2010). The WUSD consists of a preschool, an elementary school, a combined middle/high school, and a continuation school. Enrollment in the WUSD has decreased 16 percent over the past decade from 318 in 2000/2001 to 266 in 2008/2009. The average class size in the WUSD decreased by 30 percent over the past decade from 20.3 students in 2000/2001 to 14.2 students in 2008/2009. The 2008/2009 student to teacher ratio (15.3:1) was lower than the State average of 20.9:1 over the same period (Ed-Data, 2010). Approximately 67 percent of Warner Elementary School families qualified for free or reduced-price lunch programs in the 2008/2009 school year, down from 82 percent in the previous year (Ed-Data, 2010).

Warner Elementary School is located approximately 6 miles west of the Reservation. Warner Elementary School oversees grades 1-6. The school had a total enrollment of 99 students and a staff of 5 teachers in the 2008/2009 year, resulting in a student to teacher ratio of 19.8:1. Warner High School is located at the same site as Warner Elementary School. Warner High School oversees grades 6-12. The school had a total 2008/2009 enrollment of 113 students and a staff of 9.9 teachers, resulting in a student to teacher ratio of 11.4:1. The San Jose Valley Continuation High School had two students and 1.2 teachers in 2008/2009 (Ed-Data, 2010).

3.6.3 SOCIOECONOMIC CHARACTERISTICS OF LOS COYOTES TRIBE

Population and Labor

Table 3.6-9 below provides demographic information for the Los Coyotes Tribe from 2006, which represents the most current data available. As shown in **Table 3.6-9**, the Los Coyotes Band of Cahuilla and Cupeño Indians (Los Coyotes Tribe) has a total enrollment of 328 members, of which, approximately 82 members live on the reservation and are included in the Tribal Service Population. Of the Tribal Service Population, approximately 20 members are under the age of 16, approximately 36 members are between the ages of 16 and 64, and approximately one member is age 65 or older. The labor force of the Los Coyotes Tribe consists of 35 members ages 13 and older, of which 50 percent were unemployed and 44 percent were employed, but below the poverty level. Census 2000 data reports a household median income of $14,167 for the Tribe labor force. Thirteen households were considered low-income, defined by the Tribe as an annual income of less than $30,000.

Of the 328 Los Coyotes tribal members, approximately 82 live on the Reservation. The majority of the remaining tribal members live in Southern California in San Diego, Riverside, and San Bernardino counties. Those that live on the Reservation reside in the 19 mobile and fixed homes scattered throughout the Reservation. Other development on the Reservation consists of Tribal administration buildings and ancillary facilities. Tribal members are employed at a variety of jobs including six members within the private sector of Warner Springs. School aged children at the Reservation attend both Warner Springs Schools and Nolie High School. The town of Warner Springs is located approximately six miles west of the Reservation. In addition to schools and employment opportunities the town provides the nearest post office, bank, retail stores, and other services.

TABLE 3.6-9
LOS COYOTES TRIBE POPULATION AND LABOR FORCE ESTIMATES

	Total
Tribal Enrollment	328
Tribal Service Population	82
Under age 16	20
Age 16 through 64	36
Age 65 and over	1
Unavailable for work	5
Available for work	35
Employed	16
Employed but Below the Poverty Line	7
Unemployment rate	50%
Source: Los Coyotes Tribe Personal Contact, 2010	

Tribal Government

The Reservation is governed by an Executive Council and a General Council. The Executive Council consists of tribal officers including a Spokesperson, Vice Spokesperson, four at-large council members, and one alternate member. Tribal officers are elected for one-year terms. The General Council consists of all tribal members age 21 and older. For any business, policy, and planning decisions the Executive Council provides advisory services and the final decision is determined by voting in the General Council (Los Coyotes Tribe Personal Contact, 2006).

3.6.4 ENVIRONMENTAL JUSTICE

Regulatory and Policy Framework

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, as amended, directs federal agencies to develop an Environmental Justice Strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The Council on Environmental Quality (CEQ) has oversight responsibility of the federal government's compliance with Executive Order 12898 and the National Environmental Policy Act (NEPA). The CEQ, in consultation with the U.S. Environmental Protection Agency (USEPA) and other agencies, has developed

guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed.

According to guidance from the CEQ (1997b) and USEPA (1998), agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by a proposed action and, if so, whether there may be disproportionately high and adverse environmental effects to those populations. Communities may be considered "minority" under the executive order if one of the following characteristics apply:

- The cumulative percentage of minorities within a Census tract is greater than 50 percent (primary method of analysis).
- The cumulative percentage of minorities within a Census tract is less than 50 percent, but the percentage of minorities is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

According to USEPA, either the county or the state can be used when considering the scope of the "general population." A definition of "meaningfully greater" is not given by the CEQ or USEPA, although the latter has noted that any affected area that has a percentage of minorities that is above the state's percentage is a potential minority community and any affected area with a minority percentage double that of the state's is a definite minority community under Executive Order 12898.

Communities may be considered "low-income" under the executive order if one of the following characteristics applies:

- The median household income for a Census tract is below the poverty line (primary method of analysis).
- Other indications are present that indicate a low-income community is present within the Census tract (secondary method of analysis).

In most cases, the primary method of analysis will suffice to determine whether a low-income community exists in the affected environment. However, when a Census tract income may be just over the poverty line or where a low-income pocket within the tract appears likely, the secondary method of analysis may be warranted. Other indications of a low-income community under the secondary method of analysis include limited access to health care, overburdened or aged infrastructure, and dependence on subsistence living.

Affected Environment

To determine whether a proposed action is likely to have disproportionately high and adverse effects on a population, agencies must identify a geographic scale for which they will obtain demographic information. Census tracts are a small, relatively permanent statistical subdivision of a county delineated by a local committee of Census data users for the purpose of presenting data. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living

conditions at the time of establishment. Therefore, statistics of Census tracts provide a more accurate representation of a community's racial and economic composition.

Barstow Site Census tracts that were analyzed include Census Tract 118, which contains the Barstow Site, and Census tracts that are adjacent or relatively close to Census Tract 118 but do not cover an expansive area (**Figure 3.6-1**). Los Coyotes site Census tracts that were analyzed include Census Tract 209.03, which contains the Los Coyotes site, and Census tracts that are adjacent or relatively close to Census Tract 209.03 but do not cover an expansive area (**Figure 3.6-2**).

Race

The following races are considered minorities under the executive order:

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black, not of Hispanic origin
- Hispanic

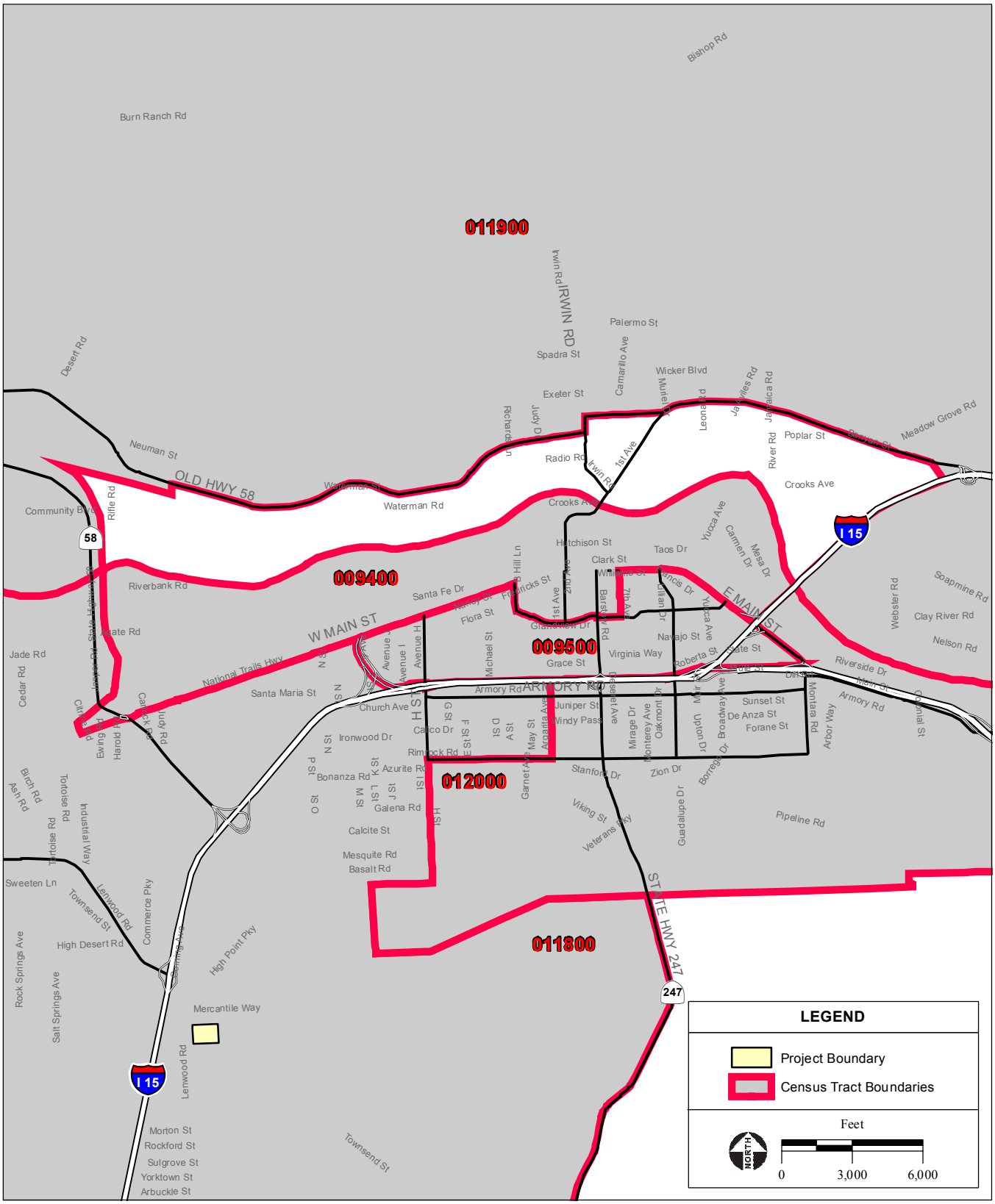
Populations of two or more races were also considered to be a minority race for the purpose of the environmental justice analysis.

Census 2000 data represents the most current racial data available by Census tract. Since the data was reported, the racial composition of the Census tracts is not expected to have changed substantially. Conservative assumptions will be applied to any borderline situations where a minor change in racial composition could affect the minority status of a Census tract. **Tables 3.6-10** and **3.6-11** display the population of each minority race by Census tract in the vicinity of the Barstow and Los Coyotes sites.

TABLE 3.6-10
MINORITY POPULATION – BARSTOW SITE AND REGION

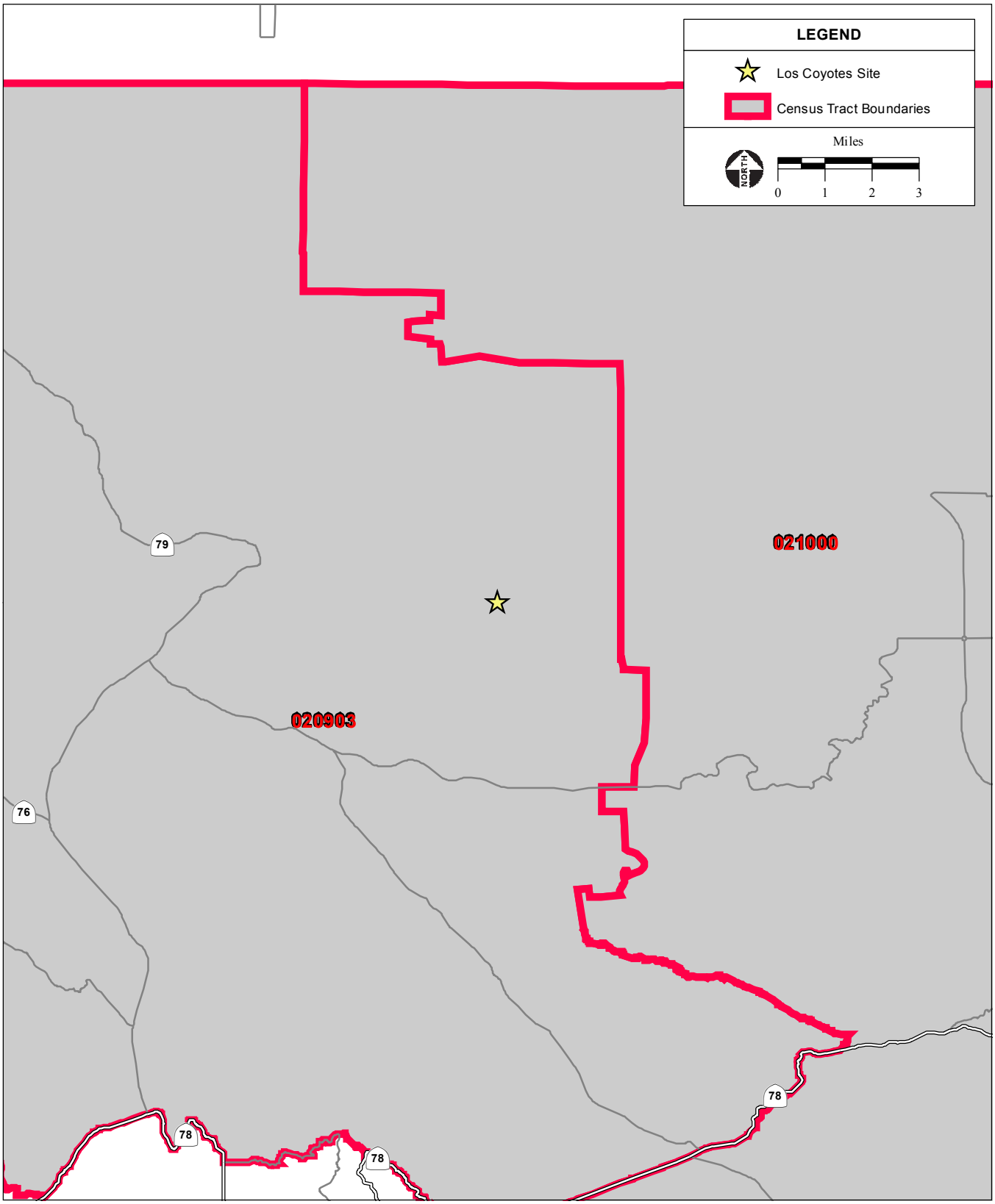
Census Tract	Total 2000 Population	Total Population: Hispanic or Latino	Total population: not Hispanic or Latino; population of one race; Black or African American alone	Total population: not Hispanic or Latino; population of one race; American Indian and Alaska Native alone	Total population: not Hispanic or Latino; population of one race; Asian alone	Total population: not Hispanic or Latino; population of one race; Native Hawaiian and Other Pacific Islander alone	Total population: not Hispanic or Latino; population of one race; some other race alone, other than white	Total population: not Hispanic or Latino; population of two or more races	Total population: minority	Percent minority
94	3,040	1,567	365	54	51	14	10	79	2,140	70%
95	6,819	2,498	651	105	148	37	12	191	3,642	53%
118	6,393	2,006	303	82	79	34	12	134	2,650	41%
119	3,644	921	85	46	48	12	12	83	1,207	33%
120	11,690	3,753	1,467	215	447	147	21	431	6,481	55%

Source: U.S. Census Bureau, 2000.



SOURCE: ESRI Data, 2006; AES 2011

Figure 3.6-1
Barstow Site Census Tracts



SOURCE: ESRI Data, 2006; AES 2011

Figure 3.6-2
Los Coyotes Site Census Tracts

As shown in **Table 3.6-10**, of the five Census tracts in the vicinity of the Barstow site, Census Tract 94 has a minority population that is equal to roughly 70 percent of the total population; Census Tract 95 has a minority population that is equal to roughly 53 percent of the total population; and Census Tract 120 has a minority population that is equal to roughly 55 percent of the total population. Minority populations in these three Census tracts are above the 50 percent threshold, and therefore are considered minority communities as defined above.

Census Tract 94 is located along the northern portion of Barstow and the Mojave River channel, and to the northeast of the Barstow site. About half of the area is located within the Barstow city limits, and is characterized by predominantly urban areas with some rural and open space area. The total population of the Census tract is 3,040 people, of which 2,140 are considered minorities. Of the minority population 73 percent are Hispanic and Latino, 17 percent are Black or African American, and the remaining 10 percent include the other considered minority populations.

Census Tract 95 is located in the center portion of the Barstow, and to the northeast of the Barstow site. The entire area is located within the Barstow city limits, and is characterized by an urban area. The total population in the Census tract is 6,819 people, of which 3,642 are considered minorities. Of the minority population 69 percent are Hispanic and Latino, 18 percent are Black or African American, and the remaining 13 percent include those that are categorized as "Other."

Census Tract 120 is located along the southern portion of Barstow, and to the east of the Barstow site. About half of the area is located within the Barstow city limits, and is characterized by predominantly urban areas with some rural and open space area. The total population in the Census tract is 11,690 people, of which 6,481 are considered minorities. Of the minority population 58 percent are Hispanic and Latino, 23 percent are Black or African American, 7 percent are Asian, 7 percent are two or more races, and the remaining 5 percent include those that are categorized as "Other."

The total minority population in Census Tract 119 is 33 percent of the total population, and in Census Tract 118, which contains the Barstow site, is 41 percent of the total population. The minority population in these Census tracts is below the 50 percent threshold, and therefore is not considered a minority community as defined above.

TABLE 3.6-11
MINORITY POPULATION – LOS COYOTES SITE AND REGION

Census Tract	Total 2000 Population	Total Population : Hispanic or Latino	Total population: not Hispanic or Latino; population of one race; Black or African American alone	Total population: not Hispanic or Latino; population of one race; American Indian and Alaska Native alone	Total population: not Hispanic or Latino; population of one race; Asian alone	Total population: not Hispanic or Latino; population of one race; Native Hawaiian and Other Pacific Islander alone	Total population: not Hispanic or Latino; population of one race; some other race alone, other than white	Total population : not Hispanic or Latino; population of two or more races	Total population : minority	Percent minority
209.03	3,000	413	49	374	36	5	3	43	923	31%
210.00	3,203	980	23	17	12	1	1	24	1,058	33%
Source: U.S. Census Bureau, 2000.										

As shown in **Table 3.6-11**, the total minority population of each of the two Census tracts that cover the Los Coyotes site area constitutes slightly greater than 30 percent of overall population. Although the minority population in the Los Coyotes Site area is below the 50 percent threshold, Alternatives C and D would be constructed on Reservation land currently occupied by Tribal members. Therefore, though analysis of Census tract demographics as a whole does not reflect existence of a minority or low-income community, to ensure a conservative analysis the Los Coyotes Band is considered to be a minority and low-income community within the project area under Alternatives C and D (**Table 3.6-9**).

Income

Census 2000 data represents the most current household income data available by Census tract. Income levels reported in Census 2000 represent wages earned in 1999. The use of older income data is expected to result in a conservative estimate of income, given that income levels tend to rise over the years due to inflation. **Tables 3.6-12** and **3.6-13** display the median household income and poverty income limit for each identified Barstow site and Los Coyotes site Census tract. A low-income community is defined as a Census tract where the median household income falls below the poverty limit.

TABLE 3.6-12
HOUSEHOLD INCOME – BARSTOW SITE AND ADJACENT CENSUS TRACTS

Census Tract	Median Household Income (1999)	Average Household Size	Poverty Threshold
City of Barstow	$35,069	2.7	$13,290
San Bernardino County	$42,066	3.2	$13,290
94	$15,922	2.5	$13,290
95	$35,475	2.7	$13,290
118	$44,017	2.9	$13,290
119	$39,637	2.8	$13,290
120	$39,773	2.8	$13,290
Source: U.S. Census Bureau, 2000.			

TABLE 3.6-13
HOUSEHOLD INCOME – LOS COYOTES SITE AND ADJACENT CENSUS TRACTS

Census Tract	Median Household Income (1999)	Average Household Size	Poverty Threshold
209.03	$32,321	2.4	$10,869
210.00	$35,685	2.2	$10,869
Source: U.S. Census Bureau, 2000.			

As shown in **Table 3.6-12**, the 1999 median household income of each Census tract surveyed in the vicinity of the Barstow site was greater than the poverty threshold. The poverty threshold for each Census tract was determined from the average household size of the Census tract. The poverty threshold assumes average household size is conservatively rounded up to the nearest person (U.S. Census Bureau, 2003b). Since the income level of Census Tract 94 is $2,632 above the poverty threshold, Census Tract

94 is not considered a low-income community. None of the identified Census tracts have a median household income less than the determined poverty thresholds; therefore, these no low-income communities have been identified in the vicinity of the Barstow site.

Similarly, as shown in **Table 3.6-13**, the 1999 median household income of each Census tract surveyed in the vicinity of the Los Coyotes site was greater than the poverty threshold. Therefore, no low-income communities have been identified in the vicinity of the Los Coyotes site.

Gaming Market

Barstow Site

Development of a casino at the Barstow site would generate revenues, some of which would be diverted from competing gaming facilities. The diversion of revenue from Tribe owned gaming facilities could potentially result in an impact to the owning Tribes of the competing gaming facilities. To determine the potential impacts to Tribes as a result of competition effects, the gaming market for the Barstow site is discussed below. In **Section 4.6** the sources of revenue for a casino at the Barstow site are discussed and any disproportionate impacts to tribes are identified as required by *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (described under the Regulatory Context for Environmental Justice impacts above). It should be noted, that to assess the gaming market and sources of revenue, non-Tribal owned gaming facilities are also considered in the analysis.

The market for a casino at the Barstow site is unique because of the regional population distribution. The potential market for the Barstow site can be divided into two major sources: close-radius residents and long-distance travelers. The close-radius market consists of individuals who reside in areas where Barstow will either be the closest casino or one of the closer casinos. The long-distance market consists of vehicles on Interstate 15 traveling to Las Vegas, as well as travelers that fork onto Interstate 40 east of Barstow going towards Arizona. The primary market opportunity for the Barstow site is the large number of travelers that currently pass through Barstow on I-15 each year.

Table 3.6-14 lists casinos identified within the competitive gaming market of the Barstow site, as described above. The market for the Barstow site includes Primm on the Nevada/California border, California Native American casinos in vicinity of the Barstow site, and casinos on the Arizona/Nevada border near Needles. The nearest gaming facility to the Barstow site is the San Manuel Indian Bingo and Casino located approximately 50 miles southwest. The furthest casino considered within the Barstow site gaming market is the Havasu Landing Casino located approximately 185 miles east

San Manuel Indian Bingo & Casino

The San Manuel Indian Bingo and Casino is located in Highland. This facility consists of 2,000 slot machines, 100 game tables, a 2,500-seat bingo hall, and seven restaurants and bars. The estimated travel time by vehicle from the Barstow site is 72 minutes.

TABLE 3.6-14
BARSTOW SITE LOCAL MARKET CASINOS

Casino Name	Owner	Location	Distance (miles)	Casino Status
San Manuel Indian Bingo & Casino	San Manuel Band of Mission Indians	Highland, CA	50	Open
Morongo Casino Resort Spa	Morongo Band of Mission Indians	Cabazon, CA	100	Open
Whiskey Pete's	Herbst Gaming [1]	Primm, NV	119	Open
Primm Valley Casino Hotel	Herbst Gaming [1]	Primm, NV	119	Open
Buffalo Bill's Resort & Casino	Herbst Gaming [1]	Primm, NV	119	Open
Havasu Landing Casino[2]	Chemehuevi Indian Tribe	Havasu Lake, CA	185	Open

Notes: [1] Owned by a private company rather than Native American Tribe.
[2] Included in the analysis because of its location off of Interstate 40. The proposed casino at the Barstow location has the potential to capture drive-by patrons on Interstate 40, which could result in competitive effects to this facility.
Source: AES, 2010.

Morongo Casino Resort Spa

The Morongo Casino Resort Spa is located in Cabazon, Riverside County, towards Palm Springs. A $250 million expansion was completed at the facility in 2004 providing a 27 story four-star hotel, luxury spa and 12,000 square feet of ballroom and meeting space. The facility consists of a 148,000 square foot casino with 2,000 slot machines, 100 game tables, and a 600-seat bingo hall, and ten restaurants and bars. The hotel consists of 272-rooms including 6 villas and 32 suites. The estimated travel time by vehicle from the Barstow site is 99 minutes.

Primm, Nevada

Whiskey Pete's Resort and Casino consists of a 36,400 square foot casino with 1,020 slot machines, 31 gaming tables, and 3 restaurants and bars, as well as a hotel with 777-rooms and 4 suites. Primm Valley Resort and Casino consists of a 46,100 square foot casino with 1,040 slot machines, 38 gaming tables, and 6 restaurants and bars, as well as, a hotel with 624-rooms. Buffalo Bill's Resort and Casino consists of a 46,000 square foot casino with 1,240 slot machines, 38 gaming tables, and 8 restaurants and bars, as well as a hotel with 1,242-rooms and 15 suites. In 2002, the combined realized estimated gross revenues from the three Primm properties were approximately $209 million. The estimated travel time by vehicle from the Barstow site is 104 minutes.

Havasu Landing Casino

The Havasu Landing Casino consists of a 6,900 square foot casino with 230 slots, 5 gaming tables, and one restaurant. The estimated travel time by vehicle from the Barstow site is 194 minutes.

Los Coyotes Site

The competitive gaming market for a casino at the Los Coyotes site is considered to consist of casinos in proximity to the Los Coyotes site in San Diego County, since patrons could choose from several casinos throughout the County. **Table 3.6-15** lists casinos located in the competitive gaming market of the Los

Coyotes site. Eight casinos were identified in the Los Coyotes market. The nearest gaming facilities to the Los Coyotes site are the Santa Ysabel Casino located approximately 11 miles southwest, the Cahuilla Creek Casino located approximately 25 miles to the north, and Harrah's Rincon Casino and Resort and Valley View Casino, which are both located 25 miles to the west. The next closest gaming facilities are the Barona Casino, Viejas Casino & Turf Club, and Sycuan Casino located approximately 30 miles, 30 miles, and 35 miles southwest, respectively. The Pala Casino and Pechanga Entertainment Center are located 32 miles and 35 miles to the northwest, respectively. Finally, the Golden Acorn facility is located 40 miles to the south.

TABLE 3.6-15
LOS COYOTES SITE LOCAL MARKET TRIBAL CASINOS

Casino Name	Owning Tribe	Location	Distance (miles)	Casino Status
Barona Valley Ranch Resort and Casino	Barona Band of Mission Indians	Lakeside	30	Open
Cahuilla Creek Casino	Cahuilla Band of Indians	Anza	25	Open
Golden Acorn	Campo Band of Kumeyaay Indians	Campo	40	Open
Harrah's Rincon Casino and Resort	Rincon Band of Mission Indians	Valley Center	25	Open
Pala Casino	Pala Band of Mission Indians	Pala	32	Open
Pechanga Resort and Casino	Pechanga Band of Luiseno Indians	Temecula	35	Open
Santa Ysabel Casino	Santa Ysabel Band of Diegueño Indians	Santa Ysabel	11	Open
Sycuan Casino	Sycuan Band of the Kumeyaay Nation	El Cajon	35	Open
Valley View Casino	San Pasqual Band of Mission Indians	Valley Center	25	Open
Viejas Casino & Turf Club	Viejas Band of the Kumeyaay Indian Nation	Alpine	30	Open
Source: AES, 2010.				

Viejas Casino & Turf Club

The Viejas Casino and Turf Club recently underwent an expansion. The facility includes a gaming area with approximately 2,250 slot machines, 80 table games, a 750-seat bingo pavilion, and a 150-seat off-track betting facility. In addition, the facility includes entertainment and shopping facilities, as well as six restaurants. Access ramps to Interstate 8 are located just south of the facility.

Pechanga Resort and Casino

The Pechanga Resort and Casino has a 188,000 square-foot gaming floor with 2,000 slot and video machines and 160 table games. The facility also has several dining establishments, including eight restaurants and a five-unit food court, as well as an entertainment area that hosts concerts and sporting events and a 522-room hotel. It is accessible from State Highway 79 in Temecula, California.

Barona Valley Ranch Resort and Casino

The Barona Valley Ranch Resort and Casino is a casino/resort complex with an eight-story 397-room hotel and a golf course. The casino includes a gaming area that is open 24 hours a day with 2,000 slot machines, 70 table games, a 15-table poker room, and a 136-seat off-track betting area. In addition, the facility includes four restaurants and a four-unit food court. The facility is accessible from Route 67 along Wildcat Canyon Road.

Pala Casino

The Pala Casino includes a gaming area with 2,250 slot machines and 87 table games. In addition, the facility includes a 507-room hotel, eight restaurants, a 2,000 seat outdoor theater, and a 30,000 square foot convention center. It is accessible from State Highway 76.

Harrah's Rincon Casino and Resort

The Harrah's Rincon Casino and Resort includes a gaming area with 1,600 slot machines, 51 table games, and a 12-table poker room. In addition, the facility includes a 21-story hotel tower with 653 rooms, eight restaurants, and an entertainment complex for concerts. Regional access to the facility is from State Highway 76 and Interstate 15.

Cahuilla Creek Casino

The Cahuilla Creek Casino is a relatively small facility that is open 24 hours a day and consists of a gaming area with 250 slot machines and three blackjack tables, a café, and a nightclub. It is remotely located along State Highway 371.

Valley View Casino

The Valley View Casino has a gaming area with 1,260 slot machines and 10 table games. In addition, the facility includes two restaurants, a bar, and a six-story parking structure. The facility is in the process of expanding, to include five new dining areas and expanded gaming and entertainment space. The facility is accessible from County Highway S6 in Valley Center, California near Lake Wohlford Road.

Santa Ysabel Casino

The Santa Ysabel Casino includes a 35,000 square foot gaming area with 349 slot machines and seven table games. The property has two restaurants. The facility is located on Highway 79 in North San Diego County near Lake Henshaw between the towns of Santa Ysabel and Warner Springs.

3.7 TRANSPORTATION/CIRCULATION

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of transportation and circulation contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0.**

3.7.1 BARSTOW SITE

The following information regarding traffic and circulation in the vicinity of the Barstow site is summarized from the Los Coyotes Casino Barstow Site Traffic Impact Analysis (TIA), provided as **Appendix H** of the Draft EIS/TEIR and the Supplementary Traffic Information Memorandum provided as **Appendix Q** of the Final EIS/TEIR. Due to the voluminous nature of the TIA appendices, they were not included in the hardcopies of the Draft EIS/TEIR but are available upon request. The TIA appendices can be viewed at: http://www.loscoyoteseis.com/documents/draft_eis-teir/report.htm.

Existing Circulation Network

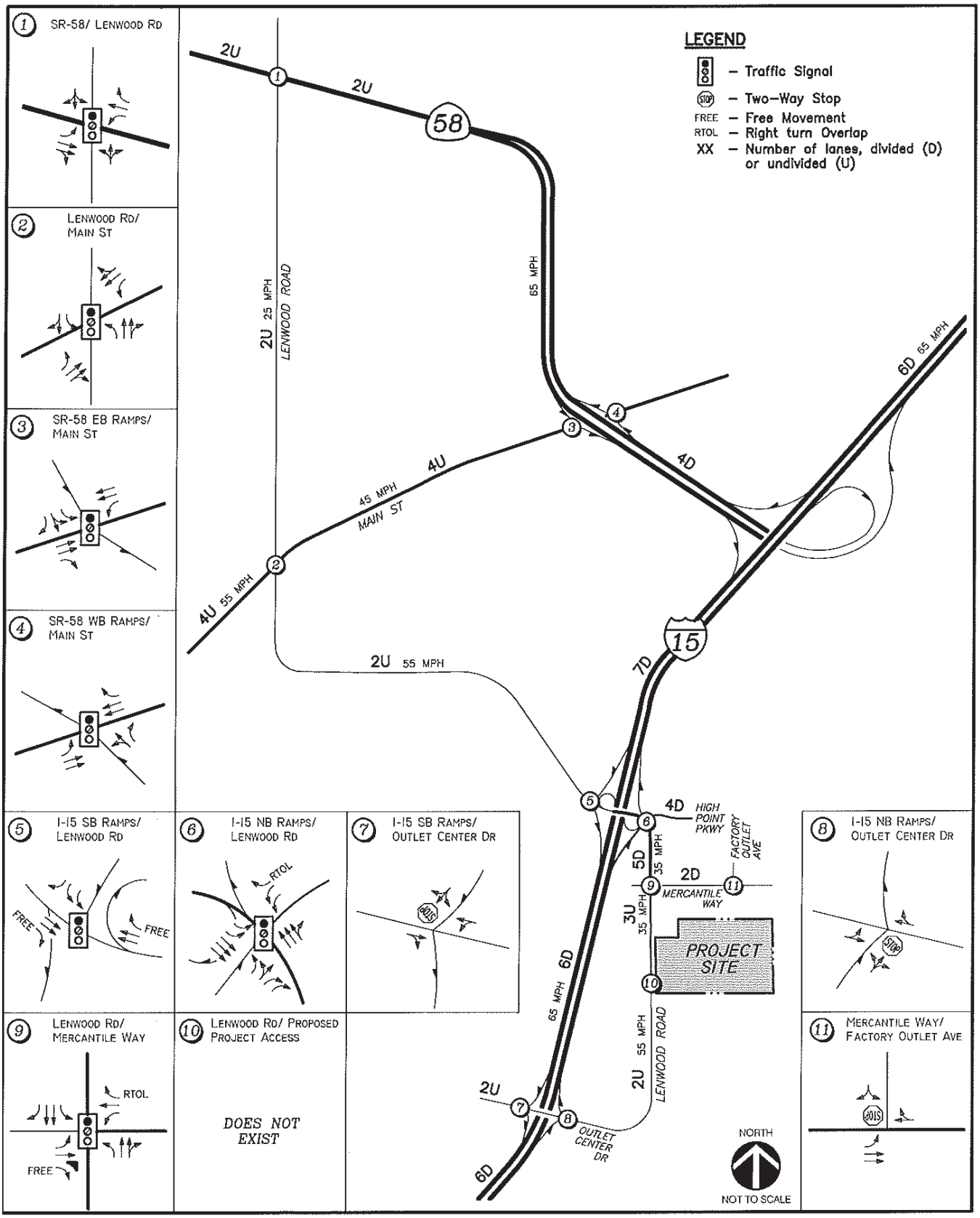
The Barstow site is located east of Lenwood Road, just south of Mercantile Way in the City of Barstow (City). Regional access to the Barstow site is provided by Interstate 15 (I-15) and State Route 58 (SR-58). Various roadways in the vicinity of the site provide local access. The east-west roadways that provide access to the site include Main Street, Mercantile Way, and Outlet Center Drive. North-south roadways that provide local access include Lenwood Road, High Point Parkway, and SR-58. **Figure 3.7-1** shows the existing transportation network in the vicinity of the Barstow site, including lane geometry and traffic controls. The following is a description of the roadway facilities and freeways in the project area.

Interstate 15

This north-south oriented interstate freeway is six-lane divided to seven-lane divided and classified as an Existing Freeway in the City's General Plan Circulation Element (Circulation Element). I-15 provides regional access between areas in southern California, including San Bernardino, Los Angeles, and San Diego counties, and areas to the northeast, including Las Vegas, Nevada, and Utah. The freeway traverses east-west through central Barstow. It currently carries approximately 57,000 to 73,000 vehicles per day in the study area.

State Route 58

This north-south and east-west oriented State highway is two lane undivided to four lane divided and classified as a Proposed Freeway in the Circulation Element. The eastern terminus of SR-58 is located at I-15 to the north of Barstow. SR-58 provides regional access westerly to Bakersfield and northern California cities. Its existing alignment traverses along the northerly portion of the City. It currently carries approximately 11,400 to 12,000 vehicles per day in the study area.



SOURCE: Linscott Law & Greenspan Engineers, 5/21/2009; AES, 2011

Figure 3.7-1

Barstow Site Existing Transportation Network

Main Street

This east-west roadway is four lane undivided and classified as a Major Highway in the Circulation Element. Main Street is the key east-west arterial through the City. It currently carries approximately 3,400 to 8,200 vehicles per day in the study area.

High Point Parkway

This east-west roadway is four lane divided and classified as a Proposed Major Highway in the Circulation Element. It currently carries approximately 4,700 vehicles per day in the study area.

Mercantile Way

This east-west roadway is two lane undivided and classified as a Major Highway in the Circulation Element. It currently carries approximately 1,400 vehicles per day in the study area.

Outlet Center Drive

This east-west roadway is two lane undivided and not classified in the Circulation Element. Outlet Center Drive provides secondary access to Lenwood Road and the I-15 freeway interchange commercial area. It currently carries approximately 800 vehicles per day in the study area.

Lenwood Road

This north-south and east-west roadway is two lane undivided to three lane undivided to four lane divided and classified as a Major Highway in the Circulation Element. Lenwood Road serves the west end of Barstow. It currently carries approximately 120-890 vehicles per day in the study area.

Factory Outlet Avenue

This north-south roadway is unpaved and not classified in the Circulation Element. It currently carries approximately 800 vehicles per day in the study area.

Transit, Bicycle and Pedestrian Facilities

Public transportation is available in the form of fixed route and Dial-A-Ride service operating six days per week by the Barstow Area Transit. There are currently three primary routes that provide service to all of the major traffic generators/attractions in the City. All routes currently begin and end at the Harvey House/Transit center and operate at one-hour headways, with each route leaving at the top of the hour between 7:00 a.m. and 6 p.m. Separate facilities for bicycles or equestrian users have not been provided within the present circulation system for the City. Bicycles utilize public roadways along with other traffic. Lenwood Road east of the I-15 Freeway and Main Street are currently part of the existing city-wide bicycle plan.

Analysis Methodologies

Operating conditions experienced by drivers are described in terms of Level of Service (LOS). This term is a qualitative measure that includes factors such as speed, travel time, delay, freedom to maneuver, and

driving comfort and convenience. LOS is represented as letters ranging from A to F, whereby LOS A represents the best traffic flow driving conditions and LOS F represents the worst traffic flow driving conditions. The operating conditions of signalized and un-signalized intersections are quantified based on average control delay per vehicle per second methodology in the *2000 Highway Capacity Manual*, while roadway segments use volume-to-capacity ratios. **Table 3.7-1** relates the operational characteristics associated with each LOS category for both signalized and un-signalized intersections.

TABLE 3.7-1
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Expected Delay	Average Total Delay Per Vehicle (Seconds)	
		Signalized	Un-signalized
A	Progression is extremely favorable. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.	35.01 to 55.00	25.01 to 35.00
E	The limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

Source: Transportation Research Board, 2000.

Roadway and freeway capacity is generally defined as the number of vehicles that can be reasonably expected to pass over a given section of road in a given time period. **Table 3.7-2** illustrates the relationship between volume to capacity ratio and LOS.

Study Roadway Segments and Intersections

The identification of the study area was based on estimated traffic volumes on roadways near the project site and through a series of scoping discussions with the City, San Bernardino Association of Governments (SANBAG), and California Department of Transportation (Caltrans) to determine the intersections, roadway segments, and freeway facilities requiring analysis. Study intersections and roadway segments evaluated under existing conditions for the Barstow site are shown in **Figure 3.7-1** and listed below:

Intersections

1. Lenwood Road/SR-58
2. Lenwood Road/Main Street
3. SR-58 East-bound (EB) Ramps/Main Street
4. SR-58 West-bound (WB) Ramps/Main Street
5. I-15 Freeway SB Ramps/Lenwood Road
6. I-15 Freeway SB Ramps/Outlet Center Drive
7. I-15 Freeway NB Ramps/Lenwood Road
8. I-15 Freeway NB Ramps/Outlet Center Drive
9. Lenwood Road/Mercantile Way
10. Lenwood Road/Project Access
11. Factory Outlet Avenue/Mercantile Way

TABLE 3.7-2
ROADWAY AND FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

LOS	Daily Roadway Capacities			Freeway V/C Ratio	Description of Travel Conditions
	2 Lns	4 Lns	6 Lns		
A	7,000	15,000	25,000	< 0.41	No physical restriction on operation speeds
B	8,000	18,000	28,000	0.42-0.62	Stable flow with few restrictions on speed and lane changing.
C	10,000	22,000	32,000	0.63-0.80	Stable flow with more restrictions on speed and lane changing.
D	12,000	26,000	35,000	0.81-0.92	Approaching unstable flow, little freedom to maneuver and short periods of heavy restrictions on flow.
E	14,000	28,000	38,000	0.93-1.00	Unstable flow, low operating speeds and some momentary stoppages
F	14,000	28,000	38,000	1.01-1.25	Forced flow operations at low speeds where the highway acts as a storage area and there are many stoppages.

V/C = Volume to Capacity; Lns = Lanes
Source: LLG, 2010

Roadway Segments

1. Lenwood Road - I-15 NB Ramps to Mercantile Way
2. Lenwood Road - Mercantile Way to Project Access
3. Lenwood Road - Project Access to Outlet Center Drive
4. Outlet Center Road - Lenwood Road to I-15 NB Ramps

Freeway Segments

I-15 Freeway Southbound:

- L Street to Lenwood Road
- Outlet Center Drive to Hodge Road

I-15 Freeway Northbound:

- L Street to Lenwood Road
- Outlet Center Drive to Hodge Road

Data Collection

Existing traffic volumes counts were performed for mid-day and PM weekday and Saturday peak hours by Linscott, Law & Greenspan (LLG) in January 2010 (**Appendix H** of the Draft EIS/TEIR). Sunday PM peak hour traffic counts were performed by LLG on October 24, 2011 and are provided in **Appendix Q** of the Final EIS/TEIR. Truck traffic was segregated from passenger vehicle volumes and were converted to passenger car equivalent (PCE) using conversion factors presented in the 2010 Los Coyotes Casino Barstow Site TIA (**Appendix H** of the Draft EIS/TEIR)

Existing Intersection Performance

Table 3.7-3 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections. It was determined that weekday and Saturday presents a worst-case scenario for intersection operation. As shown in the table, each of the study intersections operates at an acceptable LOS of D or better under existing conditions. The existing weekday and Saturday peak hour turning volumes at each of the study intersections are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 3.7-3
BARSTOW EXISTING INTERSECTION LEVEL OF SERVICE

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	9.8	A	7.6	A	7.4	A	7.9	A
2. Lenwood Rd./Main St.	TS	31.2	C	28.3	C	28.7	C	27.9	C
3. Main St./SR-58 EB Ramps	TS	3.0	A	2.4	A	3.2	A	2.2	A
4. Main St./SR-58 WB Ramps	TS	9.4	A	12.1	B	9.8	A	10.6	B
5. Lenwood Rd./I-15 SB Ramps	TS	10.3	B	10.1	B	10.3	B	9.9	A
6. Lenwood Rd./I-15 NB Ramps	TS	15.4	B	14.4	B	17.6	B	14.0	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	9.6	A	9.8	A	10.9	B	10.3	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	8.9	A	8.6	A	9.2	A	8.8	A
9. Lenwood Rd./Mercantile Way	TS	26.7	C	25.9	C	28.6	C	28.1	C
10. Factory Outlet Ave/Mercantile Way	OWSC	8.5	A	8.5	A	8.5	A	8.5	A

Notes: TS = traffic signal, OWSC = One-Way Stop Controlled
Source: LLG, 2010.

Existing Roadway Segment Performance

Existing volume to capacity ratios and LOS has been calculated for the study area roadway segments and are shown in **Table 3.7-4**. As shown in the table, all of the study roadway segments operate within an acceptable LOS under existing traffic conditions.

Existing Freeway Segment Performance

Existing volume to capacity ratios and LOS has been calculated for the study area freeway segments and are shown in **Table 3.7-5**. As shown in the table, all of the study freeway segments operate within an acceptable LOS under existing traffic conditions.

TABLE 3.7-4
BARSTOW EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Roadway	Segment	Number of Lanes	LOS E Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.32	A
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.11	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.09	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.07	A

Notes: D = divided roadway, U = undivided roadway
V/C = volume to capacity ratio
SOURCE: LLG, 2010.

TABLE 3.7-5
BARSTOW EXISTING FREEWAY SEGMENT LEVEL OF SERVICE

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to Lenwood Road	3	6,900	0.308	0.233	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.283	0.214	B	B
I-15 Southbound						
L Street to Lenwood Road	3	6,900	0.346	0.292	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.318	0.268	B	B

Notes: V/C = volume to capacity ratio
Source: LLG, 2010.

Ramp Diverge Operations

Ramp diverge operations is a measurement of the ability of a vehicle to enter the first lane of a multi-lane roadway. Tables 1, 2, 3, 4, 14, and 15 of **Appendix Q** of the Final EIS/TEIR provide the existing ramp diverge operations at I-15 NB/SB off-ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, existing ramp diverge operations are acceptable.

Intersection Queuing Operations

Tables 5, 6, 7, 8, 16, and 17 of **Appendix Q** of the Final EIS/TEIR provide existing lane queuing lengths at I-15 NB/SB off-ramps to Lenwood Road and at I-15 NB/SB off-ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, there is sufficient capacity to accommodate the existing 50th and 95th percentile queues under existing conditions. The 50th and 95th percentile queue is defined to be the queue length (in vehicles) that has only a 50 percent and 5-percent, respectively, probability of being exceeded during the analysis time period.

3.7.2 LOS COYOTES SITE

The following information regarding the existing transportation network in the vicinity of the Los Coyotes site, including lane geometry and traffic controls is summarized from the Los Coyotes Casino Traffic Impact Analysis (TIA), provided as **Appendix H** of the Draft EIS/TEIR.

Existing Circulation Network

The project site is located in San Diego County. SR-79 provides regional access to the Reservation. Local access to the site is provided by an existing unnamed access road north of Camino San Ignacio Road. Roadways within the study area include SR-79, Stage Road, Camino San Ignacio Road, San Felipe Road, and SR-76. The following is a description of the roadway facilities and state highways in the project area:

SR-79

This north-south and east-west roadway is two-lane undivided to two-lane divided. It currently carries approximately 1,600 to 3,100 vehicles per day in the study area.

SR-76

This north-south roadway is two-lane undivided. It currently carries approximately 1,900 vehicles per day in the study area.

Stage Road

This north-south roadway is two-lane undivided. It currently carries approximately 50 vehicles per day in the study area.

Camino San Ignacio Road

This north-south and east-west roadway is two-lane undivided. It currently carries approximately 500 vehicles per day in the study area.

San Felipe Road

This east-west roadway is two-lane undivided. It currently carries approximately 900 vehicles per day in the study area.

Transit, Bicycle and Pedestrian Facilities

The Los Coyotes study area is not currently served by the San Diego Metropolitan Transit System or any other public transportation system. Designated bikeway facilities do not exist in the vicinity of the Los Coyotes site.

Analysis Methodologies

The analysis methodologies discussed for the Barstow site are the same for the Los Coyotes site. **Table 3.7-1** relates the operational characteristics associated with each level of service category for both signalized and un-signalized intersections, and **Table 3.7-2** illustrates the relationship between roadway capacity and LOS.

Study Intersections and Roadway Segments

The identification of the study area was based on estimated traffic volumes on roadways near the Los Coyotes site. Study intersections and roadway segments evaluated in the traffic study are shown in Kunzman TIA (**Appendix H** of the Draft EIS/TEIR) and listed below:

Intersections

1. SR-79/Stage Road
2. SR-79/Camino San Ignacio Road
3. SR-79/San Felipe Road
4. SR-79/SR-76

Roadway Segments

- Camino San Ignacio Road east of SR-79

Data Collection

Existing traffic volumes were established through weekday and Saturday mid-day and evening peak hour traffic counts obtained by Kunzman Associates in September 2006 (**Appendix H** of the Draft EIS/TEIR). Supplemental traffic data was acquired from the *2005 Traffic Volumes on California State Highways* (Caltrans, 2005).

Existing Intersection Performance

Table 3.7-6 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections. As shown in the table, each of the study intersections operates at an acceptable LOS of D or better under existing conditions. The existing weekday and Saturday peak hour turning volumes are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 3.7-6
LOS COYOTES EXISTING INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control[1]	Peak Hour Delay							
		Weekday				Saturday			
		Mid-Day		Evening		Mid-Day		Evening	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1. SR-79/Stage Road	CSS	8.8	A	8.8	A	9.7	A	9.5	A
2. SR-79/Camino San Ignacio Road	CSS	9.0	A	8.8	A	9.5	A	9.0	A
3. SR-79/San Felipe Road	CSS	9.7	A	9.4	A	10.1	B	9.6	B
4. SR-79/SR-76	CSS	9.7	A	9.7	A	11.2	B	10.5	B

Notes: TS = traffic signal, CSS = cross street stop; V/C = Volume to Capacity.
Source: Kunzman, 2007.

Existing Roadway Segment Performance

The existing volume to capacity ratio and level of service has been calculated for the study area roadway segment and is shown in **Table 3.7-7**. As shown in the table, the study roadway segment operates within an acceptable LOS under existing traffic conditions.

TABLE 3.7-7
LOS COYOTES EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Roadway	Segment	Number of Lanes	LOS D Capacity	V/C	LOS
Camino San Ignacio	South of SR-79	2U	10,900	0.05	A

U = undivided roadway; V/C = volume to capacity ratio
Source: Kunzman, 2007.

3.8 LAND USE

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of land use contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.8.1 BARSTOW SITE

Regional and Local Setting

The City of Barstow (City) has a population of 23,599 people and encompasses approximately 33 square miles (California Department of Finance, 2006). The City is located in the western Mojave Desert approximately halfway between Los Angeles and Las Vegas on Interstate 15. The City is located on a major transportation corridor as Interstates 15 and 40, and State Highways 58 and 247 (also referred to as Barstow Road) converge within the city limits (City of Barstow, 2010).

The Barstow site is located at the outskirts of the City near Interstate 15. To the south are undeveloped and vacant lands. To the east is the Stoddard Valley Off-Highway Vehicle (OHV) area, which comprises 33,500 acres and is under the jurisdiction of the Bureau of Land Management (BLM). The land contains rolling hills, steep mountains, winding sandy washes, and open valleys and is available for all forms of motorized vehicle use (City of Barstow, 1997). Camping is also allowed, as is the use of shotguns during hunting season (BLM, 2006b).

To the north and west ~~are~~ , commercially developed areas surround~~ing~~ the Interstate-15 and Lenwood Road interchange. The businesses at the interchange include outlet malls, restaurants, and hotels. This commercial area is set apart from the rest of the City by at least 1 mile of undeveloped land. Immediately north of the Barstow site and south of Mercantile Way are several fast food restaurants and a few undeveloped parcels. These restaurants are accessed from Lenwood Road. North of Mercantile Way is the Barstow Outlet Mall, which contains approximately 35 outlet stores and restaurants. The Barstow Outlet Mall contains space for approximately 100 businesses, but is currently 60 to 65 percent vacant. Lenwood Road runs adjacent to the western boundary of the Barstow site. To the west and across Lenwood Road are a hotel and the Tanger Outlet Mall, which includes approximately 40 outlet stores and restaurants.

The Barstow site consists of three undeveloped parcels, APN# 0428-171-66, 0428-171-67, and 0428-171-68, comprising approximately 23.1 acres of land in the southwestern portion of the City. Regional access is provided via Interstate 15. Local access to the Barstow site is provided by Lenwood Road. The topography of the property consists of flat, open terrain. The Barstow site is within the City limits and planning authority resides with the City. The property is not used for hunting, fishing, hiking, timber harvesting, mining, or recreational activities.

Guidance Documents and Zoning

Land use planning and development for the Barstow site is guided by the City of Barstow General Plan Community Development Element, Lenwood Specific Plan, City of Barstow Zoning Ordinance, and the applicable Redevelopment Plan. While local land use policies would not apply to lands taken into federal trust, impacts to the community may occur in terms of a federal project's relation to growth and development visions as described in these guidance documents.

Barstow General Plan

The Barstow Planning Area is the geographical area addressed by the Barstow General Plan (City of Barstow, 1997) and extends beyond the city limits (**Figure 3.8-1**). The Barstow Planning Area encompasses over 208 square miles, and consists of the Corporate Area, Sphere of Influence and Area of Interest. The Barstow site is within the Barstow Corporate Area, which includes incorporated areas of Barstow and is developed according to the General Plan, City Zoning Ordinance, and applicable Specific Plans as discussed below. The site is designated as Visitor-Serving Commercial, which is intended to provide retail and service facilities for persons traveling along nearby highways (City of Barstow, 2009).

The central purpose of the General Plan is "to guide orderly growth and anticipate community changes in a way which promotes the health and safety of residents and visitors" (City of Barstow, 1997). The document contains long-range goals and specific policies for future development of the City. The General Plan contains eight elements, including the Community Development Element and the Recreation and Open Space Element, which are discussed below.

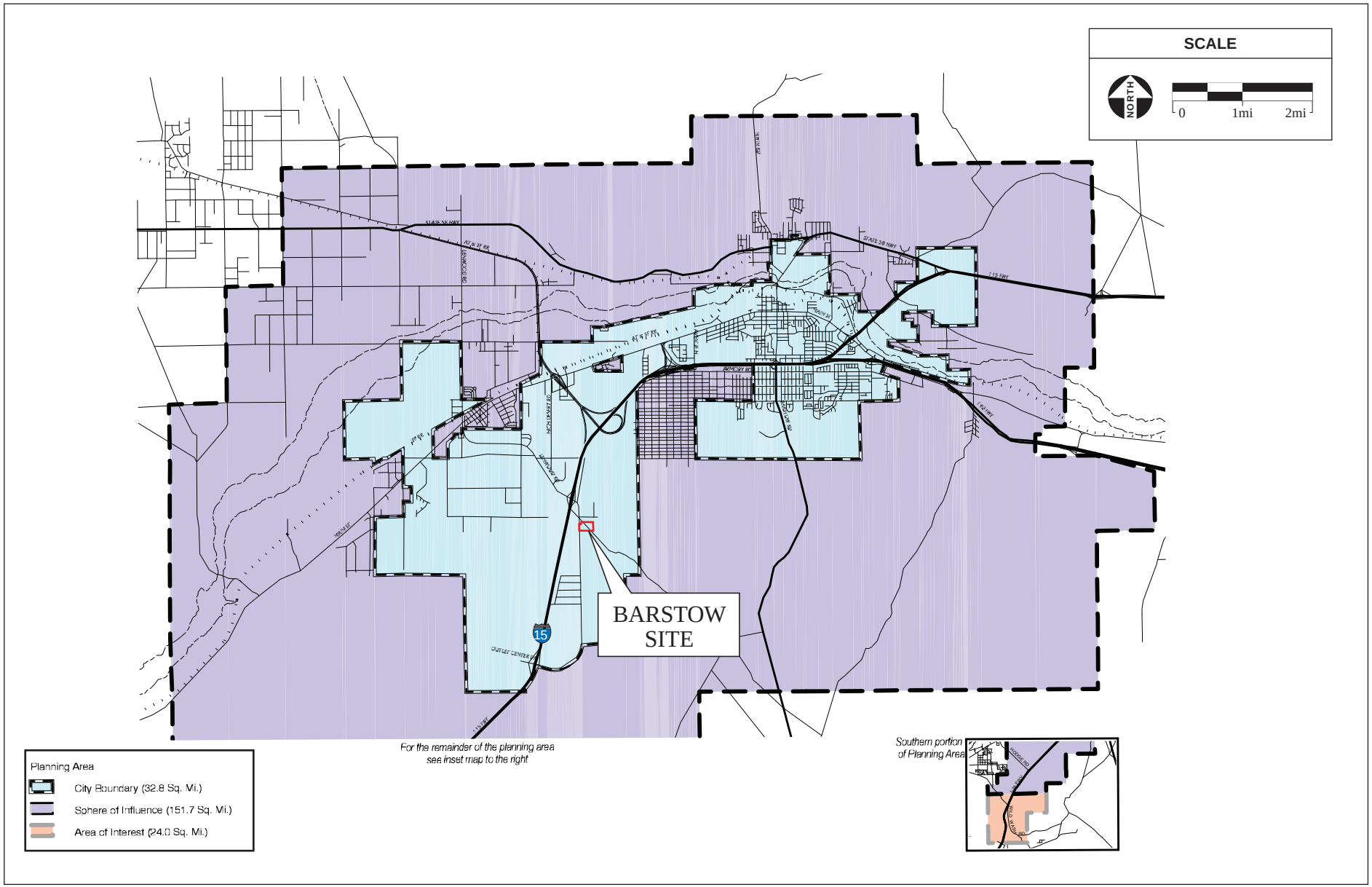
Community Development Element

The Community Development Element addresses the general distribution, location, and intensity of land uses proposed for the City (City of Barstow, 1997). Additionally, this element addresses landscaping and entryways to the City. The western part of the Barstow site is in an area identified for expected growth. The outlet mall and retail development in this area are designated for expansion. Several points around the City are marked as entryways to the community. The Barstow site is near an area marked for proposed signage and design for an entryway concept (along Interstate 15 for northbound travelers, 150 feet before Lenwood Road). The western part of the Barstow site contains a Flood Designated Area overlay. Potential impacts related to flooding are discussed in **Section 4.7.**

Open Space and Recreation Element

The Open Space and Recreation Element addresses the comprehensive and long-range plan for preservation and conservation of open space. According to the element, open space preservation is essential for natural resources, the production of resources, outdoor recreation, and public health and safety. There are many identified recreational resources that are not within the City's direct control, including school districts, parks within the Barstow Park and Recreation District, and BLM areas. The City of Barstow Parks and Recreation Department manages, develops, and maintains parks and recreation facilities within a 510-square mile region.

There are no designated recreation or open space areas on the Barstow site. An area parallel to Mercantile Way, north of the Barstow site, is identified as a recreation corridor and areas just east of the



SOURCE: City of Barstow General Plan, 1996; AES 2011

Figure 3.8-1
City of Barstow Planning Area

site are identified as OHV areas on the Open Space/Recreation Plan Map.

Lenwood Specific Plan

Specific plans combine the effect of general planning and zoning for designated areas. Land use designations and development standards within specific plans tend to be more specialized than those contained in the city general plans or city zoning ordinances. The Barstow site is located within the Lenwood Specific Plan Boundary (City of Barstow, 2000; City of Barstow 2010). The site is designated as Commercial-Recreational/Transition within the Lenwood Specific Plan (**Figure 3.8-2**).

Development standards and criteria are contained in Section 3.0 of the Lenwood Specific Plan. The area contains approximately 2,280 acres of industrial, highway commercial and related uses. Land uses include outlet centers, freight distribution uses, fast-food restaurants, hotels, and truck stops.

The Barstow site is located within a Transitional area, as designated by the Lenwood Specific Plan. Development within Transitional areas requires a conditional use permit to ensure compatibility with the adjacent off-highway vehicle areas and to ensure the property has adequate provisions for water, sewer, electricity, gas, telephone, and storm drainage. Commercial development in a transitional area requires connection to a public sewer system to be financed and constructed by the property owners.

City of Barstow Zoning Ordinance

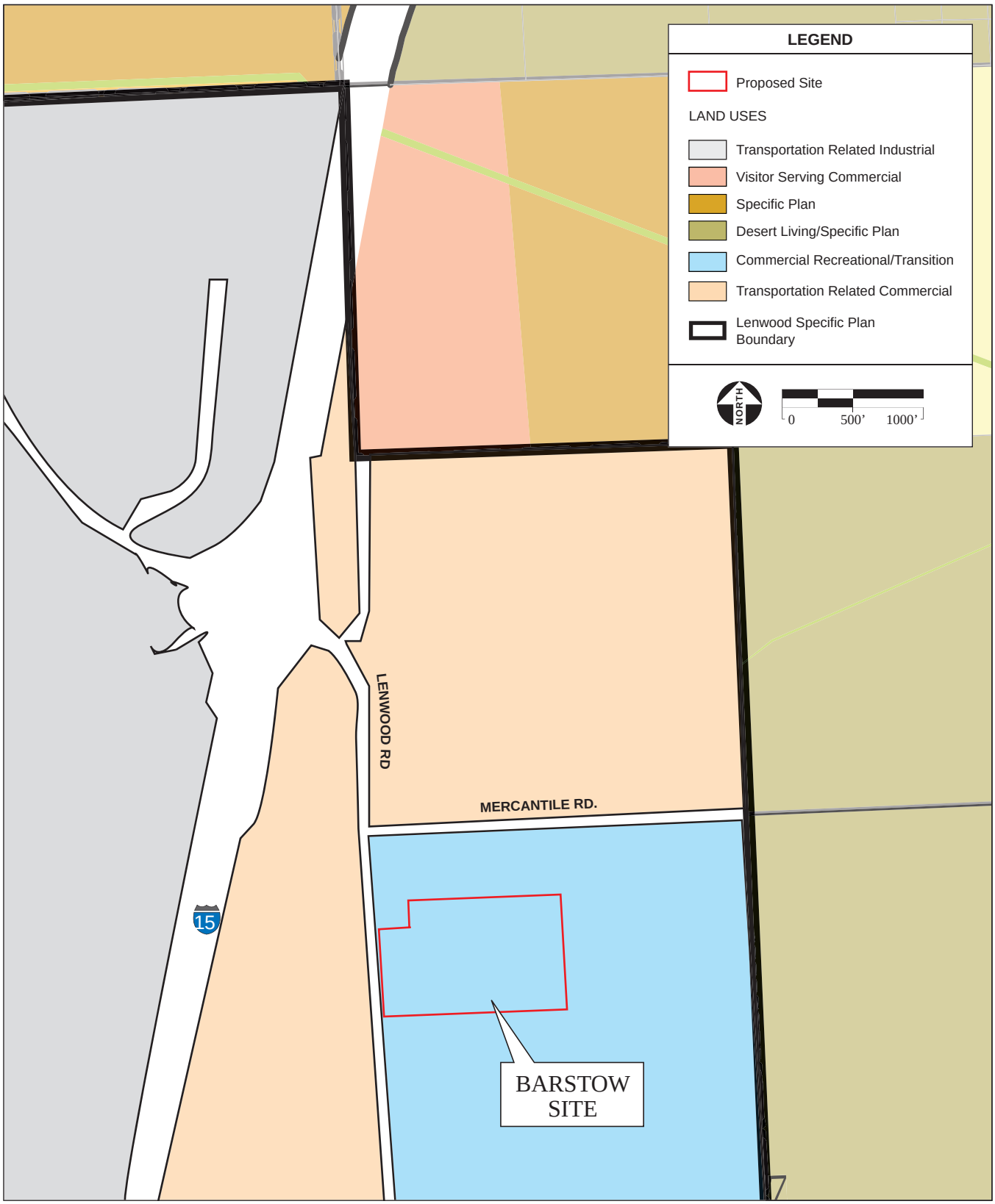
The Barstow site is zoned as Specific Plan on the City of Barstow Zoning Map and shown on **Figure 3.8-3** (City of Barstow, 2000). The City Zoning Ordinance is used to direct growth according to the General Plan. Minimum lot size, setbacks, and maximum heights for areas zoned as Specific Plan are contained within Section 3.0 of the Lenwood Specific Plan.

Redevelopment Plan

The City has two Redevelopment Areas for which plans were developed to address blight as specified in the California Community Redevelopment Law, California Health and Safety Code §33000. The Barstow site is within Redevelopment Project Area 1. The objective of the Redevelopment Plan is to eliminate or alleviate blight conditions including: inadequate/obsolete design, irregularly shaped and inadequately sized lots, declining property values, and economic maladjustment (City of Barstow, 1997). The Redevelopment Plan includes design guidelines related to mechanical screening, design integration of new structures, exterior elevations of new buildings, exterior lighting, and fencing materials.

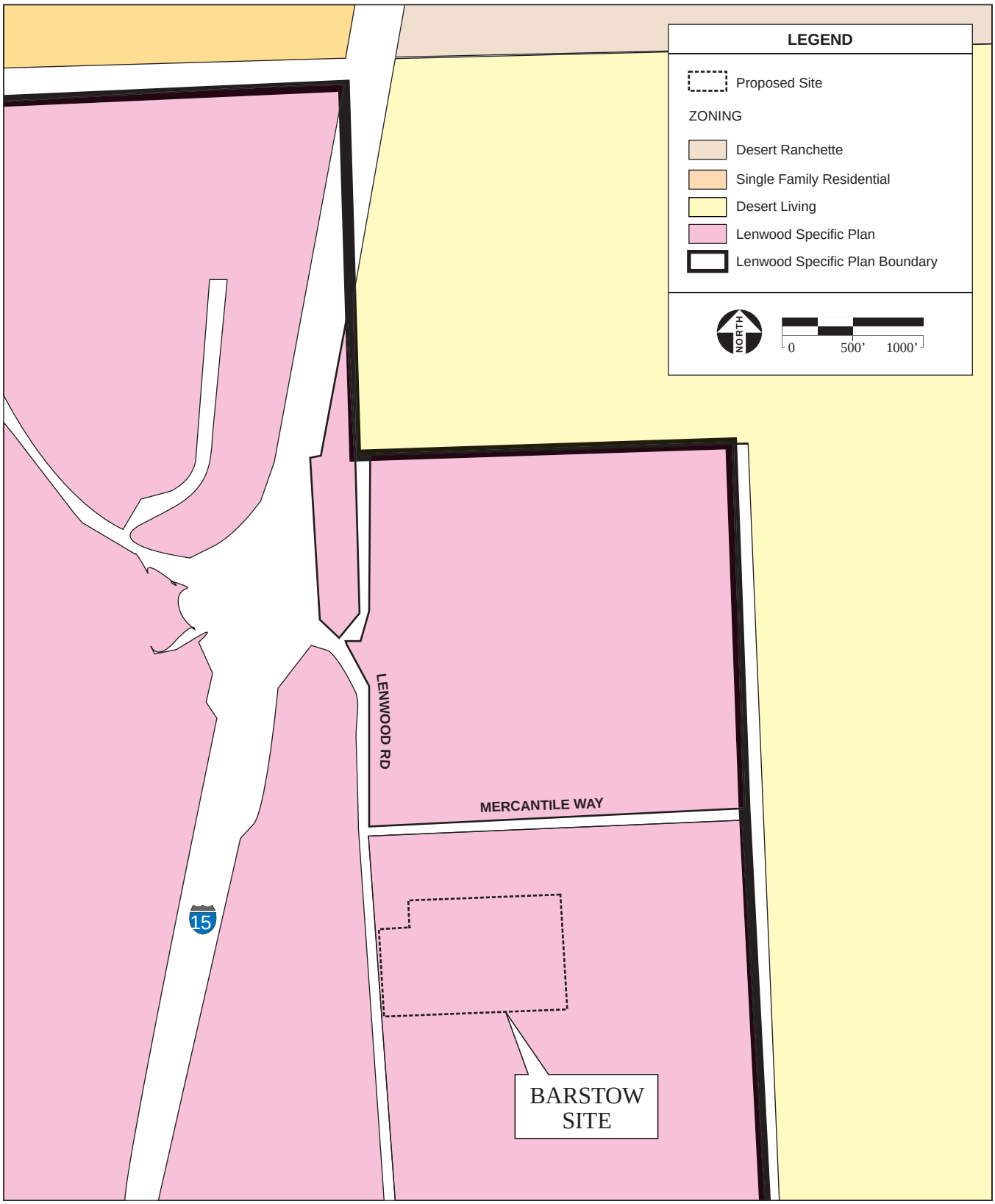
Agriculture

Due to the desert environment and water conservation issues, agriculture production is limited in the Barstow Planning area. Farmland does occur in the floodway, 100-year floodplain, or areas with significant aggregate resources (City of Barstow, 1997). All agriculture in the Barstow Planning Area is irrigated. The California Department of Conservation (CDOC) map of important farmland shows the Barstow site as an area of potential grazing land (CDOC, 2006.) The areas most likely to serve agricultural areas in the Barstow Planning Area are north of the City along the Mojave River. Even this area is not viable for agriculture due to extensive water needs (City of Barstow, 1997). The General Plan



SOURCE: City of Barstow General Plan, June, 1997; City of Barstow, 2006; AES, 2011

Figure 3.8-2
City of Barstow General Plan



SOURCE: City of Barstow Planning Department. 4/28/00; City of Barstow, 2006; AES, 2011

Figure 3.8-3
City of Barstow Site Zoning

does not anticipate continuation of agricultural uses and prioritizes water conservation over loss of agricultural lands (City of Barstow, 1997).

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that federal programs are administered in a matter that is compatible with state and local units of government, and private programs and policies to protect farmland (7 U.S.C. § 4201).

The Natural Resource Conservation Service (NRCS), responsible for the implementation of the FPPA, categorizes farmland in a number of ways. These categories include: prime farmland, farmland of statewide importance, and unique farmland. Prime farmland is considered to have the best possible features to sustain long-term productivity. Farmland of statewide importance includes farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique farmland is characterized by inferior soils and generally needs irrigation depending on climate. The Land Evaluation and Site Assessment is a numeric rating system used by the NRCS to evaluate the relative agricultural importance of farmlands. This evaluation is completed on Form AD 1006, the Farmland Conversion Impact Rating Form. Consultation with the NRCS has shown that the Barstow site does not contain prime farmland, unique farmland, or farmland of statewide or local importance (**Appendix I** of the Draft EIS/TEIR).

Williamson Act

The California Land Conservation Act of 1965, commonly known as the Williamson Act, is designed to preserve farmlands and open space lands by discouraging premature and unnecessary conversion to urban uses. Under the provisions of the Williamson Act, landowners contract with the county to maintain agricultural or open space use of their lands in return for a reduced property tax assessment. The contract is self-renewing and the landowner may notify the county at any time of intent to withdraw the land from its preserve status. Withdrawal involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses. There are no agricultural uses on the Barstow site and there are no existing Williamson Act contracts on the parcels comprising the Barstow site.

3.8.2 LOS COYOTES SITE

Regional and Local Setting

The Los Coyotes Reservation consists of 25,050 acres in northern San Diego County, approximately 6 miles east of the town of Warner Springs. Highway 79 North provides access to the Reservation. The Los Coyotes site consists of 19 acres in the southern portion of the Reservation, just east of San Ysidro Creek (**Figure 2-9**). The Los Coyotes site is undeveloped and does not contain urban features or land uses.

Land to the east of the Los Coyotes Reservation is part of Anza-Borrego State Park. This state park includes hiking trails, off-road vehicle areas, and camping; and is the largest state park in California. Lands to the northwest are part of the Cleveland National Forest and are controlled by the U.S. Forest

Service. The BLM owns the land to the south. To the west are residential, commercial, and recreational uses associated with Warner Springs and the Vista Irrigation District. Residences in this area are typically either single-family residences on lots of one acre or less or spaced rural residential homes on lots of one to ten acres. Some rural-residential housing near Warner Springs has small orchards, fields, and storage structures associated with the property. To the west of the Reservation is Warner Springs Ranch, a resort with 240 cottages and an 18-hole golf course. To the southwest are agricultural uses near Lake Henshaw, which is approximately 7 miles southwest of the Reservation.

Approximately 52 Tribal members live on the 25,050-acre Reservation, of which 2,100 acres are identified as areas of potential development (Marc Anderson, Inc., 2004). The development areas include the San Ignacio area and the San Ysidro Creek area. Development in other areas is limited by steep topography. Lands excluded from consideration for potential development include slopes exceeding 30 percent, severely eroded land, and rock land. Potential development opportunities include Tribal housing, community facilities, a health center, a Tribal office/administration complex, campgrounds, recreational use, agriculture, and a casino. New Tribal housing, if constructed, would be located in the central portion of the Reservation (Marc Anderson, Inc., 2004). The Los Coyotes site is not regularly used for activities such as hunting, fishing, hiking, or timber harvesting.

Guidance Documents and Zoning Ordinance

Because the Los Coyotes site is located on land that is held in trust by the BIA, it is not subject to San Diego County land use jurisdiction. The Reservation is within the North Mountain Planning Community Area and is designated as Tribal Lands on the General Plan Land Use Map (San Diego County, 2004). The Los Coyotes site is not within the range of influence of an airport. Land uses on the Los Coyotes Reservation are governed by the Los Coyotes Tribal Council.

Agriculture

Soils on the Reservation which would most likely serve agricultural uses belong to the Mottsville Series which could produce small grain and forage crops. Mottsville loamy coarse sand occupies 292 acres on the Reservation. Crop yields for this type of soil are contingent upon adequate winter rainfall. Loamy alluvial land occupies 138 acres and could be used for pasture. Crouch course sandy loam occupies 177 acres and may be suitable for apple or pear orchards (Marc Anderson Inc, 2004). The primary limit to cultivation on the Reservation is the steep topography. There are currently no agricultural activities on the Los Coyotes site or the remainder of the Reservation.

Farmland Protection Policy Act

Consultation with the NRCS has shown that the Los Coyotes site contains approximately 17 acres of farmland subject to evaluation under the Farmland Protection Policy Act. The Los Coyotes site contains approximately 2.7 acres of prime and unique farmland and 14.3 acres of farmland of statewide or local importance (**Appendix I** of the Draft EIS/TEIR).

Williamson Act

There are no lands under a Williamson Act contract on the Los Coyotes site.

3.9 PUBLIC SERVICES

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of public services contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.9.1 WATER SUPPLY

Barstow Site

Water is supplied in the vicinity of the Barstow site by Golden State Water Company (GSWC) and private groundwater wells. The Barstow site does not have a connection to GSWC. The nearest line is a 16-inch diameter line that runs along the west side of Lenwood Road and terminates at Mercantile Way, just north of the Barstow site (HydroScience, 2006). The Mojave Water Agency (MWA) aids in the recharge of groundwater due to the overdraft condition of the Mojave Basin. A private groundwater well on the northeast portion of the Barstow site served a former residence and is no longer in use. The well was drilled in 1983 and is approximately 360 feet deep (Merrell Engineering Company, 2003). In 1996, the water level for this well was measured at 280.25 feet below ground surface (EDR, 2006a).

Golden State Water Company

GSWC is an investor-owned public utility and is a subsidiary of American States Water Company. The Barstow site is located in GSWC Region 3, which serves Los Angeles, San Bernardino, Imperial, and Orange counties and contains 21 separate water systems. Within Region 3, the Barstow site is located in the Barstow Customer Service Area, which is a part of the Mountain/Desert District. The Barstow Customer Service Area supplies water to the City of Barstow (City) and surrounding unincorporated areas.

The Barstow Customer Service Area of the GSWC has approximately 8,910 customers. Groundwater is pumped from the Mojave River basin-Centro sub basin, where groundwater is allocated subject to adjudication decisions. The Barstow system consists of 17 active groundwater wells and a 1.0 million gallon reservoir, which provide approximately 600 gallons per minute (gpm) on average. The wells have a current total active capacity of 16,147 acre-feet per year (ac-ft/yr). Actual pumping for these wells averaged 9,556 ac-ft/yr between 2000 and 2004. The GSWC has three licenses from the State Water Resources Control Board that allow GSWC to pump a maximum of 20.0 cubic feet per second (14,479 ac-ft/yr; GSWC, 2005). Subject to the adjudication decision of the Mojave River Basin, the GSWC had a Free Production Allowance of 16,784 ac-ft from 2005 to 2006. The adjudication and Free Production Allowance are discussed in more detail under the MWA below.

Mojave Water Agency

The MWA is responsible for water resource management in areas of the High Desert in San Bernardino County. The boundaries of the agency encompass 4,900 square miles including the Barstow site. Governed by a seven-member elected Board of Directors, the MWA is a state water contractor with

access to the State Water Project via the California Aqueduct and serves as Watermaster, settling overdraft issues in the Mojave Basin (MWA, 2006).

The State Water Project delivers water from the Sierras via the California Aqueduct. One of 29 state water contractors with access to this water source, the MWA connects to the California Aqueduct via the MWA Mojave River Pipeline, which is 76 miles long and consists of 24-inch diameter pipe. The pipeline extends from the California Aqueduct north of Barstow, to just east of Barstow. There are three recharge sites near Barstow: the Hodge, Lenwood, and Daggett/Yermo sites. At these locations, groundwater is recharged to compensate for overdraft conditions. The MWA is entitled to receive an annual allotment of 75,800 ac-ft/yr from the State Water Project (MWA, 2006).

Due to overdraft conditions in the Mojave River Basin, the City and Southern California Water Company filed a lawsuit in 1990 to guarantee water from upstream users. The result of this judgment was the establishment of Free Production Allowances (FPA) for water producers. Water produced in excess of the FPA must be replaced by the producer through payment to the MWA to purchase replacement water or through the transfer of unused FPA from another producer (MWA, 2006).

Los Coyotes Site

Groundwater wells and springs supply water in the vicinity of the Los Coyotes Reservation. Spring discharge ranges from 1 to 20 gpm and is used for both private water sources as well as a community system in the San Ysidro area (Marc Anderson, Inc., 2004). The well with the largest potential yield is the Flowing Artesian Well (10S/4E-13H1), which was pumped in 1940 at a rate of 135 gpm with a resulting draw down of 7 feet (Ballog and Moyle, 1980). While the potential yield of the well may exceed 500 gpm, the safe yield for the well is 62 gpm (Marc Anderson, Inc., 2004).

The Los Coyotes water system includes an upper water system and lower water system. The lower water system supplies tribal residences and tribal facilities in the San Ysidro Creek area by a gravity-fed water system built in the 1940s. The lower water system was rehabilitated by the U.S Department of Agriculture. Water is supplied by a community well. The system includes 8,900 feet of 6-inch diameter water main, 2 pressure-reducing stations, and a 140,000-gallon steel storage tank. The upper water system served the former campground and one residence for non-potable uses and is supplied by three springs. Springs are piped by gravity flow to concrete spring boxes and have an estimated flow of 7 gpm. The upper water system includes a 62,000-gallon storage tank and 6,000 feet of water line (Marc Anderson, Inc., 2004). This water system needs improvements to provide potable water to the campground and/or future development. Current water use is estimated at 2,500 gallons per day (gpd) for domestic use by tribal households on the Reservation. The total annual water used is estimated at 912,500 gallons or 2.8 ac-ft (Marc Anderson, Inc., 2004). Nearby water systems include the Vista Irrigation District (VID), which pumps groundwater southwest of the Reservation. The VID has a well field with 24 wells ranging from 150 to 350 feet in depth. From 2002-2003, approximately 11,130 ac-ft of groundwater were pumped (Marc Anderson, Inc., 2004). There are concerns of depleting groundwater resources due to groundwater pumping in this area.

3.9.2 WASTEWATER SERVICE

Barstow Site

The Barstow site is not currently connected to a public wastewater system. Wastewater service in the vicinity of the Barstow site is provided by the City. The nearest trunk sewer lines are located on Mercantile Way located less than a mile north of the Barstow site. Currently, peak wastewater flow to the City facility is 2.7 million gallons per day (mgd) (Barbour, 2009) The wastewater treatment plant has a treatment capacity of 4.5 mgd of average daily wastewater flow and a peak flow of 7.6 mgd (City of Barstow, 2008). Components of the wastewater treatment system include aeration basins, secondary clarifiers, a chlorine contact chamber, and a chlorine contact lagoon. The wastewater treatment plant provides primary and secondary treatment. Treated effluent is disposed to effluent percolation ponds with a capacity of 3.0 mgd. During peak flows wastewater is treated and then metered out to the effluent percolation ponds so capacity is not exceeded (HydroScience, 2006). Sludge from the secondary treatment system is dried and hauled off-site to a composting facility.

Los Coyotes Site

Individual septic systems are used throughout the Reservation for residential wastewater disposal. Wastewater is disposed to leach fields. Restrooms at campgrounds were closed due to septic system problems (Springer and Anderson, Inc., 1998).

3.9.3 SOLID WASTE SERVICE

California Integrated Waste Management Act

In 1989, the State of California enacted Assembly Bill 939. The California Integrated Waste Management Act, which requires jurisdictions to conduct a solid waste disposal needs assessment that estimates the disposal capacity needed to accommodate projected solid waste generated within the jurisdiction and to identify a minimum of 15 years of permitted disposal capacity. All local jurisdictions are required to divert 50 percent of their total waste stream from landfill disposal.

Barstow Site

The last approved diversion rate for the City was 62 percent in 2006 (CIWMB, 2009). Solid waste and recycling in the City is collected by Burrtec Waste Industries, Inc., which is the authorized franchise hauler under contract with the City. Solid waste is hauled directly to the Barstow Landfill on Barstow Road, located off of Highway 247, approximately 3 miles outside of the city limits. The City has single stream recycling collection for residential and commercial customers. Bins are provided for co-mingled materials accepted in the recycling program. Commercial customers who generate large amounts of cardboard may be provided with a separate container for cardboard. Recyclables are hauled to the Material Recover Facility in Victorville, where they are sorted and processed for recovery. The following materials are accepted for recycling: mixed papers, glass and beverage containers, plastics, cans, and scrap metals (Barbour, 2009).

The Barstow Landfill accepts non-hazardous solid waste including construction/demolition, agriculture, industrial, sludge, and mixed municipal waste. The permitted capacity is 750 tons per day. The permitted

750 tons per day includes 150 tons of liquid from sewage ponds. As of March 2007 the landfill had a remaining capacity of 924,401 cubic yards; the current life expectancy of the landfill is 2012 (CIWMB, 2009). The Environmental Impact Report (EIR) to operate and expand the landfill from a 47-acre site to a 331-acre site was certified in October 2009. After expansion of the landfill, the permitted daily limit will be 1,500 tons per day and the landfill is predicted to last until 2070 (County of San Bernardino, 2006).

Los Coyotes Site

The last board approved diversion rate for the unincorporated County of San Diego was 54 percent in 2006 (CIWMB, 2009). Federal lands, including tribal land, are considered out-of-state and not included in calculation of county diversion rates.

Solid waste at the Reservation is collected by Ramona Disposal. Solid waste is hauled to the Ramona Material Recovery Facility and Transfer Station at 324 Maple Street in Ramona, California. The transfer station has a maximum permitted throughput of 370 tons per day and accepts construction/demolition, green materials, and mixed municipal wastes (CIWMB, 2009). From the transfer station, waste is hauled to the Ramona Landfill, Sycamore Sanitary Landfill, and Otay Landfill. Ramona Landfill receives most of the solid waste that Ramona Disposal collects.

The Ramona Landfill is located at 20630 Pamo Road in Ramona, California, approximately 34 miles southwest of the Los Coyotes site. The maximum permitted capacity is 295 tons per day (CIWMB, 2009). As of 2008, there were 589,000 cubic yards remaining out of a total disposal capacity of 2,200,000 cubic yards (Mohr, 2009). Accepted waste types include agricultural, construction/demolition, mixed municipal, sludge, tires, and wood waste. The estimated closure date of the landfill is 2011(Mohr, 2009).

The Otay Landfill is located at 1700 Maxwell Road in Chula Vista, California, approximately 85 miles southwest of the Los Coyotes site. The landfill is permitted for a maximum permitted capacity of 5,830 tons per day. As of November 30, 2006 the remaining capacity is 33,070,879 cubic yards out of a total disposal capacity of 62,377,974 cubic yards. The landfill has a disposal acreage of 230 acres. Accepted waste types include agricultural, construction/demolition, green materials, mixed municipal, sludge, tires, and other designated wastes. The estimated closure date of the Otay landfill is 2021 (CIWMB, 2009).

The Sycamore Sanitary Landfill is located at 8514 Mast Boulevard in San Diego, California, approximately 63 miles southwest of the Los Coyotes site. The landfill is permitted for a maximum permitted capacity of 3,965 tons per day. As of September 30, 2006 the remaining capacity is 47,388,428 cubic yards out of a total disposal capacity of 48,124,462 cubic yards. The landfill has a disposal acreage of 324 acres. Accepted waste types include agricultural, asbestos, contaminated soils, mixed municipal, sludge, tires, shreds, wood waste, and other designated wastes. The estimated closure date of the Sycamore Sanitary Landfill is 2031(CIWMB, 2009).

3.9.4 ENERGY

Barstow Site

Southern California Edison Company (SCE) provides electricity to approximately 13 million people in California and has a service area of approximately 50,000 square miles. SCE provides electricity to most of San Bernardino County, including the City. Energy sources include fossil fuels, natural gas, hydroelectric power, nuclear energy, and renewable resources. The former residence on the Barstow site was served by SCEC. Overhead 12 kilovolt lines remain along the northern portion of the project site and continue onto the Barstow site short of the eastern boundary (Merrell Engineering Company, 2003).

Southwest Gas Corporation provides natural gas services to the City. Southwest Gas Corporation is an investor-owned utility with 1.7 million customers in Arizona, Nevada, and California. The company had a throughput of 2.4 billion therms in 2007 (Southwest Gas Corporation, 2007). The nearest gas line is a 4-inch diameter line located along the Lenwood Road, adjacent to the eastern boundary of the Barstow site (Merrell Engineering Company, 2003).

Los Coyotes Site

San Diego Gas & Electric supplies electricity to the southwest portion of the Reservation. An overhead electrical line enters from the western portion of the Reservation and runs east, ending at a residence after the community center. One residence relies on solar panels. Tribal residents heat their homes with propane or wood-burning stoves.

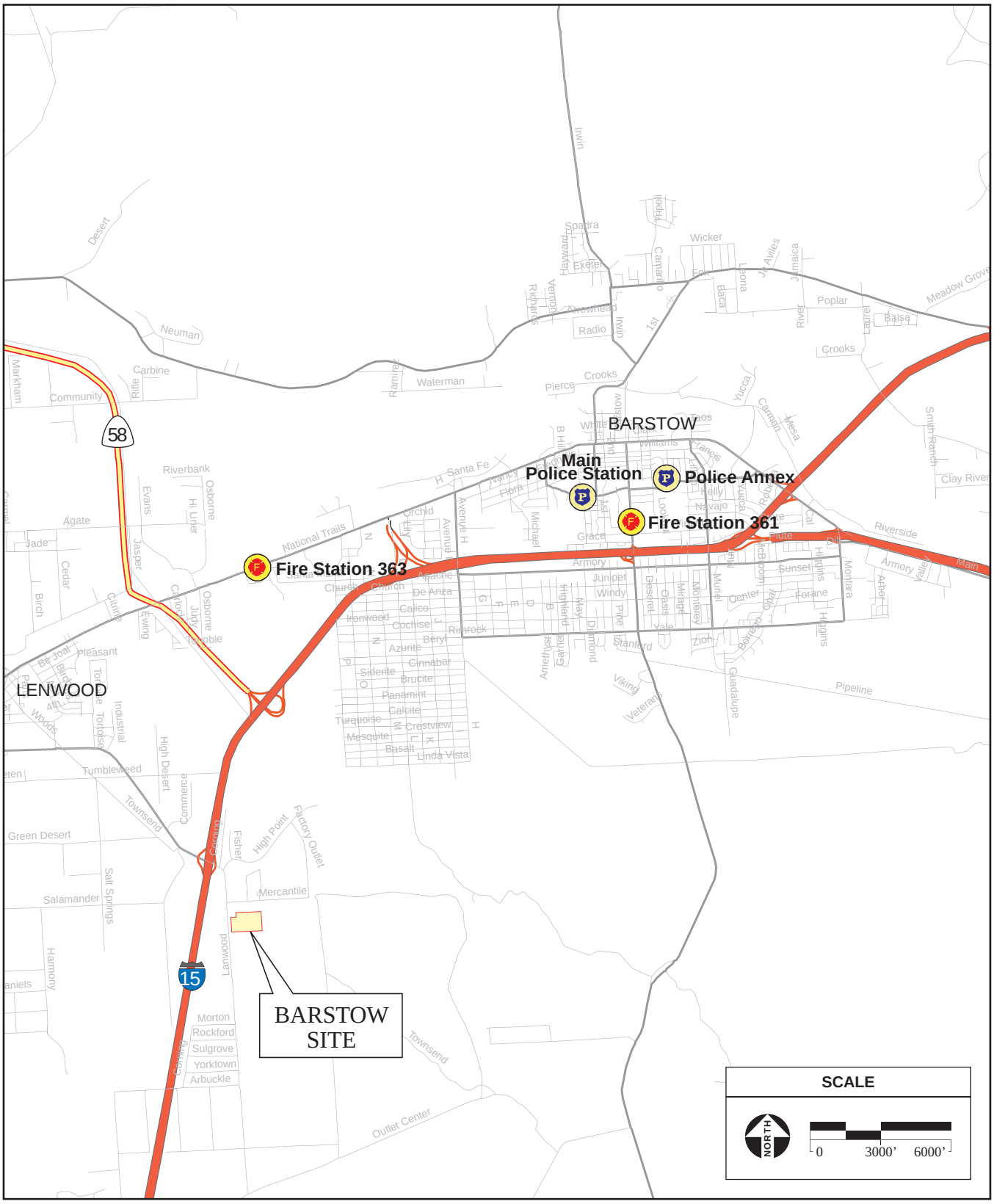
3.9.5 LAW ENFORCEMENT SERVICES

Barstow Site

The Barstow Police Department (Department) provides law enforcement services within the City limits, which encompasses approximately 40 square miles and has a service population of 23,000. The Department is funded through the City budget. The main station is located at 220 East Mountain View Street and houses the patrol, records, dispatch, and evidence functions. An annex located at 500 Melissa Avenue in Barstow houses the investigative and code enforcement bureaus, as well as the crime analysis and training functions (Burns, 2009).

There are 40 sworn staff police officers that are assigned black and white police vehicles. Non-sworn staff are assigned to records, dispatch, code enforcement, and crime analysis. The Department has a 10-member Special Response Team (SRT) which is currently staffed with 8 officers. The Department has 11 patrol vehicles, an evidence/crime scene van, an SRT van, eight unmarked vehicles, one volunteer vehicle, and three code enforcement vehicles (Harpole, 2006).

Calls are assigned on a seniority rotation. Patrol is staffed at one sergeant and four officers per shift. The desired response times are 5 minutes for priority 1 calls and 20 minutes for non-critical calls. Average response times vary from 3-8 minutes (Burns, 2009). Based on traffic and conditions, drive time from the main station to the Barstow site on Interstate 15 may take as long as 15 minutes (Harpole, 2006). The location of police stations in relation to the Barstow site is shown in **Figure 3.9-1**.



SOURCE: ESRI Data, 2006; AES, 2011

Figure 3.9-1
Barstow Public Services

The Barstow Police Department handled 33,683 calls for service (approximately 90 per day) in 2005. In 2005, there were 5,714 police reports filed and 2,368 arrests (Harpole, 2006). A summary of reported crimes for 2007 is provided in **Table 3.9-1**.

TABLE 3.9-1
CITY OF BARSTOW CRIME

Crime	Number of Incidents
Homicide	3
Rape	21
Robbery	72
Assault	241
Burglary	402
Larceny Theft	621
Motor Vehicle Theft	186
Arson	15
Total	***1,561***
Source: FBI, 2007.	

The Sheriff's Department does not provide primary law enforcement services within the City limits but does provide mutual aid assistance on request. The Sheriff's Department has a Desert Rescue Squad, which provides search and rescue services in the High Desert. California Highway Patrol (CHP) is the primary law enforcement for state-owned facilities in the City and traffic enforcement on freeways. CHP also provides mutual aid assistance on request.

Los Coyotes Site

In the unincorporated areas of San Diego County, including on the Reservation, the San Diego Sheriff's Department provides general patrol and law enforcement investigative services. CHP provides traffic services. Under Public Law 280, the State and other local law enforcement agencies have enforcement authority over criminal activities on tribal land. The Sheriff's Department provides primary law enforcement services by contract to several incorporated areas including the cities of Del Mar, Encinitas, Imperial Beach, Lemon Grove, Poway, San Marcos, Santee, Solana Beach, and Vista. The Sheriff's Department provides general law enforcement and detention services in a service area encompassing approximately 4,200 square miles (San Diego County Sheriff's Department, 2009).

The Department includes eight major detention facilities, seven major patrol stations, nine patrol substations, a crime laboratory, a search and rescue team, and support operations. The Sheriff's Department has approximately 4,000 employees, including sworn officers and professional support staff. The Ranchita substation serves the Reservation and is located approximately 6 miles southwest of the Los Coyotes site. The Ranchita substation is responsible for over 1,400 square miles, approximately a third of San Diego County. Staffing includes one sergeant, 8 patrol deputies and accompanying support staff. Service areas include Warner Springs, Ranchita, Borrego Springs, and the Reservation. A police office under the Ranchita substation is located in Borrego Springs (San Diego County Sheriff's Department, 2009).

3.9.6 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

Barstow Site

The Barstow Fire Protection District (District) provides fire prevention, fire safety and paramedic services to the City and surrounding County areas within the District boundaries. The service area is 60 square miles and includes the City and the communities of Lenwood, Grandview, North Barstow, and Barstow Heights (BFPD, 2006). The District also plans to provide service to areas corresponding to City annexations. The District is a Self Governed Special District. The District has Automatic and Mutual Aid Agreements with San Bernardino County Fire, Marine Base Fire (Department Of Defense), Fort Irwin Fire, and with volunteer departments in Daggett, Yermo, and Newberry. The San Bernardino County Fire Department operates the nearest fulltime fire station, approximately 30 minutes from Barstow (Corrao, 2009).

The District operates two stations: Stations 361 and 363. Fire Station 363 is the nearest station to the Barstow site and would provide primary response. Station 363 is located at 2600 West Main Street approximately 4 miles northeast of the Barstow site (**Figure 3.9-1**). Station 363 is equipped with 2 ICS Type-1 fire engines. Fire Station 361 could also provide service to the Barstow site and is located at 861 Barstow Road (**Figure 3.9-1**). Station 361 is equipped with one quint truck with a 75-foot aerial ladder, three ICS "Type-1" fire engines, and one water tender. The District has one paramedic engine per station, staffed with three full-time personnel. The District's target response time is 5 minutes or less to 90 percent of calls, and the current average response is approximately 8 minutes. In 2008, the District responded to 4,200 calls for service (Carrao, 2009). To aid in fire suppression, projects within the District are required to meet minimum fire flows per the 2000 Uniform Fire Code and 2001 California Fire Code (Carrao, 2006).

The District also responds to emergency medical service calls. Ambulance service is provided by Desert Ambulance located at 831 West Main Street. The nearest emergency room is located at Barstow Community Hospital at 555 South 7th Street (**Figure 3.9-1**). Emergency air services are provided by Mercy Air for all emergencies requiring transport to a Trauma Center. The nearest trauma center is Arrowhead Regional Medical Center, located approximately 97 miles away in Colton, California. Should an emergency evolve a heart attack or other heart condition, the victim must be transported to the ST-Elevation Myocardinal Infarction (STEMI) Receiving Center at St. Mary Medical Center in Apple Valley, approximately 23 miles south west of the Barstow site (Carrao, 2009).

Los Coyotes Site

The Los Coyotes site receives fire and emergency medical services from California Department of Forestry and Fire Protection (CDF) and Sunshine Summit Volunteers. The CDF Warner Springs station provides primary service to the Reservation and is located at 31049 Highway 79. The station is approximately ~~10~~ 6.1 miles from the Reservation (San Diego County, 2011). The CDF Station is open year round. The Sunshine Summit Volunteers station is located at 35227 Highway 79 in Warner Springs, which is approximately ~~16.5~~14.4 miles from the Reservation. The Sunshine Summit Volunteers would provide service if CDF engines were unavailable (Jones, 2006).

The CDF Warner Springs station is staffed year round and is equipped with one Type-II engine and one Type III engine. The station is staffed by two to three personnel 24 hours a day. The station receives 3-5 calls per week on average. The expected response time to the Los Coyotes R~~r~~eservation is 10 minutes for a fire engine and 20 minutes for an ambulance (Captain Johnson, 2009). The nearest ambulance is stationed near Lake Henshaw. The expected response time of the Sunshine Summit Volunteers is approximately 25.1 minutes (San Diego County, 2011). Mercy Air provides emergency air transport and ambulance services. The nearest hospital is Palomar Medical Center located in Escondido approximately 55 miles from the Los Coyotes site.

3.10 NOISE

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of noise contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.10.1 ACOUSTICAL BACKGROUND AND TERMINOLOGY

Noise is often defined as unwanted sound. Pressure variations occurring frequently enough (at least 20 times per second) that the human ear can detect are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called hertz (Hz).

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness.

3.10.2 NOISE EXPOSURE AND COMMUNITY NOISE

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor (L_{dn}), and shows very good correlation with community response to noise. **Table 3.10-1** contains definitions of acoustical terminology used in this section. **Table 3.10-2** shows examples of noise sources that correspond to various sound levels.

The Day-Night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. Additional weight is placed on nighttime readings based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. L_{dn}-based noise standards are commonly used to assess noise effects associated with traffic, railroad, and aircraft noise sources.

TABLE 3.10-1
ACOUSTICAL TERMINOLOGY

Term	Definition
A-weighted	The A-weighted sound level has been shown to correlate with subjective responses and two sounds judged to be of similar loudness would produce similar dB(A) values, although their un-weighted dB values would vary considerably. The A-weighting compares well with other noise sources. It is, therefore, the most widely used.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 to 10 p.m.) weighted by a factor of 3 and nighttime hours weighted by a factor of 10 prior to averaging.
L_{dn}	The 24-hour day and night A-weighed noise exposure level that accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.
L_{eq}	The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Source: Beranek, 1998.	

Effects of Noise on People

The effects of noise on people fall into three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide

variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

TABLE 3.10-2
TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES

Loudness Ratio	Decibels (dBA)	Description
128	130	Threshold of pain.
64	120	Jet aircraft take-off at 100 feet.
32	110	Riveting machine at operator's position.
16	100	Shotgun at 200 feet.
8	90	Bulldozer at 50 feet.
4	80	Diesel locomotive at 300 feet.
2	70	Commercial jet aircraft interior during flight.
1	60	Normal conversation speech at 5 to 10 feet.
1/2	50	Open office background level.
1/4	40	Background level within a residence.
1/8	30	Soft whisper at 2 feet.
1/16	20	Interior of recording studio.
Source: Beranek, 1998.		

Human reaction to a new noise can be estimated through comparison of the new noise to the existing ambient noise level within a given environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will likely be judged by the recipients. With regard to increases in A-weighted noise levels, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause adverse response

Noise effects on humans can be physical or behavioral in nature. The mechanism for chronic exposure to noise leading to hearing loss is well established. The elevated sound levels cause trauma to the cochlear structure in the inner ear, which gives rise to irreversible hearing loss. Though it pales in comparison to the health effects noted above, noise pollution also constitutes a significant factor of annoyance and distraction in modern artificial environments:

- The meaning listeners attribute to the sound influences annoyance; if listeners dislike the noise content, they are annoyed

- If the sound causes activity interference (for example, sleep disturbance), it is more likely to annoy
- If listeners feel they can control the noise source, it less likely to be perceived as annoying
- If listeners believe that the noise is subject to third party control, including police, but control has failed, they are more annoyed
- What is music to one is noise to another; the perceived unpleasantness of the sound causes annoyance.

Generally, most noise worldwide is generated by transportation systems, principally motor vehicle noise, but also including aircraft noise and rail noise. Poor urban planning may also give rise to noise pollution. Besides transportation noise, other prominent sources are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems.

Stationary point sources of noise, including stationary mobile sources, such as idling vehicles, attenuate (lessen) at a rate of six to nine dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, ~~either~~ vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles would typically attenuate at a lower rate, approximately four to six dBA.

Sensitive Receptors

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well being could be impaired or endangered by the presence of noise.

3.10.3 EXISTING NOISE LEVELS AND SOURCES

Barstow Site

Sources of Noise

Although the Barstow site is primarily open and undeveloped, several sources of noise are located in the immediate vicinity.

Noise from traffic on I-15 and activities associated with the Tanger Outlet Mall and several retail establishments (fast-food and motels) all contribute to an existing daytime ambient noise level in the area. Night time noise levels are much lower due to reduce traffic volumes on I-15 and a large percentage of businesses in the vicinity of the project site are closed. Based on existing day and night time activity and the proximity of noise sources to the project site, it is estimated that the day/night ambient noise level in the vicinity of the Barstow site is between 55 to 65 Ldn, dBA or approximately 65 CNEL.

Sensitive Receptors

The nearest sensitive receptor is a motel located approximately 600 feet west of the Barstow project site. The nearest residence is located approximately one mile west of the project site, and Lenwood School is located approximately two miles northwest of the project site.

Los Coyotes Site

Sources of Noise

The Los Coyotes site is located within six miles of the unincorporated community of Warner Springs between the Cleveland National Forest and the Anza-Borrego Desert State Park, east of Mount Palomar. The area is isolated from major noise sources and the only existing noise source of significance is local activity. Based on the existing traffic volumes on Camino San Ignacio Road, noise levels in the area are an average of about 35 to 45 dBA, which is typical of rural environments. Nighttime noise levels are about 10 decibels lower.

Sensitive Receptors

There are no off-reservation noise receptors within approximately three miles of the project site. Remaining land in the vicinity is undeveloped. Noise sensitive receptors are located along Camino San Ignacio Road approximately 50 feet from the centerline of the roadway near the intersection of SR-79 and Camino San Ignacio Road. ~~Remaining land in the vicinity is undeveloped~~.

3.11 HAZARDOUS MATERIALS

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles relating to hazardous materials contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.11.1 IDENTIFICATION OF HAZARDOUS MATERIALS

Hazardous materials are those materials that may pose a material risk to human health or the environment. These materials are subject to numerous laws and regulations. A Phase I Environmental Site Assessment (ESA) is used to identify Recognized Environmental Conditions (RECs) on a particular site. REC refers to the presence or likely presence of conditions on a property that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. This includes hazardous substances and petroleum products, even under conditions in compliance with laws. A Phase I ESA was conducted in accordance with Bureau of Indian Affairs (BIA) guidelines and the American Society for Testing and Materials (ASTM) Standard Practice E 1527-00 for the Barstow site (**Appendix J** of the Draft EIS/TEIR).

The ESA includes review of federal and state regulatory agency records and databases, interviews with local officials and property owners, site inspection and aerial photography review. Such an assessment is a requirement of the Department of the Interior to avoid financial liability for cleanup of contaminants under the Comprehensive Environmental Response, Compensation on Liability Act (CERCLA) 42 U.S.C.A. Section 9607A. Regulatory agency databases are searched for records of known storage tank sites and known sites of hazardous materials generation, storage, or contamination, or where violations pertaining to storage and/or use of hazardous materials have occurred. Sites and listings up to two miles from a point roughly at the center of project site are included in the search.

Environmental database review for the project alternatives was accomplished using the services of a computerized search firm, Environmental Data Resources, Inc. (EDR). EDR reports for the Barstow and Los Coyotes sites are in **Appendix K** of the Draft EIS/TEIR. EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement. The scope of the regulatory information search conducted for the sites included but was not limited to the following databases:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) – Identifies sites United States Environmental Protection Agency (USEPA) is currently investigating for the release or threatened release of hazardous substances pursuant to the CERCLA of 1980.
- The National Priority List (NPL) – Identifies abandoned or uncontrolled hazardous waste sites identified by the USEPA for priority remedial action under the Federal Superfund Program.
- Resource Conservation and Recovery Act (RCRA) – Identifies registered hazardous waste generators, transporters, treatment, storage, and disposal facilities in the vicinity of the study area.

The databases maintained under this Act include:
  - Generators and Violators List (RCRA-G)
  - Large Quantity Generators (RCRA-LQG)
  - Small Quantity Generators (RCRA-SQG)
  - RCRA Corrective Actions List (CORRACT)
  - RCRA Treatment, Storage, or Disposal List (RCRATSD)
- Emergency Response Notification System (ERNS) database – Identifies USEPA documented releases of oil and hazardous substances. This database was reviewed to determine whether past spill events have occurred in the study area.
- US BROWNFIELDS database – Identifies USEPA documented properties which have been complicated by the presence or potential presence of hazardous substance, pollutant, or contaminant and safely clean up the area.
- Hazardous Materials Information Reporting System (HMIRS) – Identifies reported hazardous material spill incidents reported to DOT.
- Facility Index System/Facility Registry System (FINDS) – Identifies any criminal enforcement actions for all environmental statutes.
- ENVIROSTOR– Identifies potential or confirmed hazardous substance release properties.
- Leaking Underground Storage Tank (LUST) – Identifies reported leaking underground storage tank incidents.
- Underground Storage Tank (UST) – Identifies active UST facilities gathered from local regulatory agencies.
- Hazardous Substance Storage Container Database (HIST UST) – Identifies historical listings of UST sites.
- California Hazardous Material Incident Report System (CHMIRS) – Identifies information on reported hazardous material incidents (accidental releases or spills).
- Facility Inventory Database (CA FID UST) – Identifies historical listings of active and inactive underground storage tank locations from the State Water Resource Control Board.
- Indian UST List – Identifies USTs registered on Indian Land.
- Indian LUST – Identifies leaking underground storage tanks on Indian Land.
- Solid Waste Facilities Database (SWF/LF) – Identifies solid waste disposal facilities registered and tracked by the state. The facilities tracked include solid waste disposal sites as well as transfer and processing stations.
- Inactive Solid Waste Facilities (HIST LF) – Contains historical information of the location of abandoned landfills and solid waste disposal sites.

Each site was evaluated for visible signs of current or historic hazardous materials involvement on or in the vicinity of the site. Signs of possible hazardous materials involvement would include any indications of underground storage tanks existing on the site; stained soils and/or unusual odors originating from the site; indications of an excavation or removal of soils, including patched asphalt and large debris piles; and other obvious signs.

3.11.2 EXISTING CONDITIONS

Barstow Site

Descriptions of the land in the vicinity of the Barstow site are as follows: to the south is undeveloped land, to the east is the Stoddard Valley Off-Highway Vehicle (OHV) area, to the north and west are commercially developed areas surrounding the Interstate-15/Lenwood Road interchange. Businesses in the vicinity include two outlet malls, restaurants, and hotels. Telephone inquiries were made to various agencies including the local fire department and the Regional Water Quality Control Board (RWQCB) as part of the ESA. No outstanding open environmental cases with local, state, or federal regulatory agencies for the site were identified, and no reported sites in the vicinity of the Barstow site were found to be currently under remediation. A Phase I ESA conducted in accordance with the *ASTM Standard E 1527, Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* was prepared for the Barstow site (Merrell Engineering Co., 2003). As a result, the Phase I ESA concluded that no RECs exist on the Barstow site and no further studies were warranted. The Phase I ESA will be updated prior to the land being taken into trust. The Department of the Interior Policy 602 DM2 requires that a Phase I assessment be no more than 6 months old at the time of the trust acquisition. The update is required to ensure that no changes have occurred regarding the presence of hazardous material since the Phase I ESA documenting the original conditions on the site (**Appendix J** of the Draft EIS/TEIR).

Additional site reconnaissance conducted on May 3 and 4, 2006 confirmed that the Barstow site is undeveloped with the exception of concrete and asphalt fragments as well as structural debris. None of these remains (ferrous metal, plastics, modern window glass, ~~electrical~~and electrical wire) are hazardous materials. There were no stained soils, strong chemical odors, or other signs of hazardous materials present during the site visit.

An updated database report for the Barstow site was reviewed in March 2006 (EDR, 2006a) and February 2009 (EDR, 2009a). The Barstow site was not listed on federal or state regulatory agency databases that were searched by EDR. The EDR report listed one site in the vicinity of the Barstow site. A Chevron Station was listed on the CA FID UST and HIST UST databases due to the presence of two 10,000-gallon USTs one 5,000-gallon UST containing gasoline and one 1,000-gallon UST containing waste oils. Based on the current regulatory status and lack of violations reported, this site is not considered to represent a likely past, present, or material threat of release on the Barstow site (**Appendix K** of the Draft EIS/TEIR).

Los Coyotes Site

The Los Coyotes site is located on undeveloped Tribal land situated on an interior portion of the Reservation. A site visit in May 2006 revealed no visual indications of stained soils, unauthorized dumping, petrochemical storage, or other hazardous materials involvement on the site. Areas adjacent to the project site are also undeveloped.

Observations made during the May 2006 site visit of surrounding properties revealed no threat to the environment quality of the Los Coyotes site. AES reviewed an updated database report for the Los Coyotes site in April 2006 (EDR, 2006b) and February 2009 (EDR, 2009b). The Los Coyotes site was not listed on any regulatory agency database that was searched by EDR. There were no adjacent sites listed with hazardous materials releases that would affect the surface and subsurface conditions on the

Los Coyotes site **(Appendix K** of the Draft EIS/TEIR**).**

3.12 AESTHETICS

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of aesthetics contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.12.1 VIEWSHED CHARACTERISTICS

A viewshed comprises one or more viewing corridors, or vistas. Each vista provides a line-of-sight that can be characterized uniquely from among other vistas within the viewshed. The following constituent elements compose the visual experience within each vista:

- Clarity in Line of Sight—the overall visibility of the object within the viewshed, influenced by such factors as trees, buildings, topography or any other potential visual obstruction within the viewshed.
- Duration of Visibility—the amount of time the object is exposed to viewers within the viewshed. For example, a passing commuter will experience a shorter period of viewing time than a resident within the viewshed.
- Proximity of the Viewer—the effects of foreshortening due to the distance of the viewer from the object will influence the dominance of the object in the perspective of the viewer within the viewshed.
- Number of Viewers—the number of viewers anticipated to experience the visual character of the object in forward-oriented view (i.e., not through a rear-view mirror). A densely populated residential district~~,~~ or a busy highway within the viewshed of the object would present more viewers than unpopulated areas.

3.12.2 BARSTOW SITE

Local Plans and Ordinances

Development in the area of the Barstow site is guided in part by the Lenwood Specific Plan (LSP). Components of the plan relevant to the topic of aesthetics include landscaping, building height, lighting, and signage. With regard to landscaping, the LSP seeks to create a sense of project identity throughout the area (City of Barstow, 1988). Specific requirements include using undulating berms and ground covers, as well as planting trees of similar species. Light fixtures are limited to 30 feet high, and are prohibited from extending above the roofline of the building. According to the LSP, lighting must be designed to confine direct rays to the premises. Types of signage prohibited by the LSP include roof signs, flashing signs, and animated signs. Signs are not to exceed 150 square feet, and must not extend above the roofline of the building. The name of the business shall be the dominant message on the sign, and the sign must be architecturally compatible with the building.

Barstow Site Viewshed

The Barstow site lies on the outskirts of the visually developed area of the City. The topography surrounding the Barstow site inclines immediately to the northeast and to the southwest, across I-15 from

the site. Upland areas also occur further south, but not in the immediate viewing area of the Barstow site. Residential areas are located approximately 2 miles northwest and approximately 1.5 miles northeast of the Barstow site. The residential area to the northeast has no view to the Barstow site as topographical features occlude these views. A partial view of the Barstow site and vicinity is afforded to a limited number of residences northwest of the site. These residences are situated on or near Main Street, in or southwest of the community of Lenwood. From the Barstow site, they are located approximately 1.8 to 3.5 miles away, in an approximately west to northwest direction. The view of the Barstow site from these residences is obscured by the two outlet malls and other commercial and retail development adjacent to the site. Other views come from surface streets in the vicinity and from I-15, which passes the Barstow site to the west and northwest.

Scenic Highways

There are no state- or county-designated scenic highways or roads adjacent to the Barstow site. The portion of I-15 extending from State Route 58 near Barstow to State Route 127 near Baker, California is eligible for designation as a State Scenic Highway (Caltrans, 2007).

3.12.3 LOS COYOTES SITE

Local Plans and Ordinances

The Los Coyotes site is located on land that is held in trust by the United States and is therefore not subject to any local or regional land use regulations of San Diego County. The Los Coyotes Tribal Council has jurisdictional authority over aesthetic matters within the Los Coyotes Reservation.

Los Coyotes Site Viewshed

The region surrounding the Los Coyotes site is generally mountainous, and it is this formation that frames the project area viewshed within its valley environment. The valley itself shapes the course of the San Ysidro Creek, which generally flows north to south adjacent to the western boundary of the Los Coyotes site. At the site, the valley floor is essentially flat and level. Oak and pine ~~woodlamds~~woodlands ~~occludes~~occlude the view of the site from up the valley. Likewise, the view from down the valley is occluded by groups of trees, primarily oak and pine, which traverse the valley.

The Los Coyotes site is visible from adjacent hills; from Camino San Ignacio Road, which is a dirt road that provides primary access through the area; and from Kupanil Road, which runs generally north-south atop a ridgeline formed by the mountains immediately to the east. The site is not visible from locations outside the Los Coyotes Reservation.

Scenic Highways

There are no state- or county-designated scenic highways or roads in the vicinity of the Los Coyotes site. A portion of I-15, extending from State Route 76 State Route 91 is eligible for designation as a State Scenic Highway (Caltrans, 2007).

CHAPTER 3.0

AFFECTED ENVIRONMENT

CHAPTER 3.0 AFFECTED ENVIRONMENT

This chapter describes the existing environment of the area that may be affected by the Los Coyotes Casino Project, as required by CEQ Regulations (40 C.F.R. § 1502.15). Descriptions include land resources, water resources, air quality, biological resources, cultural and paleontological resources, socioeconomic conditions and environmental justice, transportation/circulation, land use, public services, noise, hazardous materials, and aesthetics. The existing conditions described herein provide the baseline for determining the environmental effects identified in **Chapter 4.0**.

3.1 LAND RESOURCES

This section describes the existing land resources for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of land resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.1.1 GENERAL ISSUES

Soils

Soil Surveys

Soil surveys for the San Bernardino County and San Diego County areas were published by the Natural Resource Conservation Service (NRCS), in 1986 and 1979, respectively. Each survey maps soil units and provides a summary of major physical characteristics for each unit with management recommendations. General data on capability classes is presented in **Table 3.1-1**. Soil characteristics specific to each site are presented in the following sections.

In the Land Capability Classification System used by the NRCS, soils are grouped according to soils capability class. A soils capability class indicates limitations on practical use for food, fiber, or forage production. Classes are designated by Roman numerals I through VIII, with each class containing soils that are enough alike to require similar management. Additional coding by subclass is indicated by lower case letters, which designate the restrictions of soil groups within each class.

Expansive Soils

Clay particles can swell by absorbing large amounts of water relative to their volume. When these particles dry out, they shrink. Then, when rain falls on the dry, cracked ground, the clays swell, the cracks close, and the ground can rise several inches (JCP, 2001). The potential for soils to demonstrate expansive properties is primarily dependent upon clay content.

TABLE 3.1-1
SOILS CAPABILITY CLASSES

Capability Class	Definition
Class I	Soils have few limitations that restrict their use; the least restricted class.
Class II	Soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
Class III	Soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.
Class IV	Soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.
Class V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use.
Class VI	Soils have severe limitations that make them generally unsuitable for cultivation.
Class VII	Soils have very severe limitations that make them unsuitable for cultivation.
Class VII	Soils and landforms restricted to use as recreation, wildlife, water supply or aesthetic purposes.
Capability Subclass	**Definition**
e	Soils have erosion problems.
w	Soils have wetness problems.
s	Soils have root zone limitations.
c	Soils have climatic limitations.
Source: NRCS, 2006	

Soil Corrosivity

Corrosion is an electrochemical process affecting degradation of metals or metal-containing materials in contact with water. Rates of corrosion vary depending on the acidity of the water, its electrical conductivity, oxygen concentration, and temperature. Both ground and surface water can be acidic. Surface water tends to have higher oxygen concentrations than groundwater. Groundwater tends to be more insulated from temperature variation than surface water.

Generally, corrosion occurs on structures that are exposed to several types of environments or electrolytes. Such electrolytes include raw and treated water, salt water and fresh water, various soils, rainwater, and airborne contaminants. These electrolytes serve to complete electrochemically corrosive circuits between different metals within the same environment. The flow of electrical current in the corrosion circuit is proportionate to the loss of metal in the corrosion process. Ferrous materials corrode at the rate of 20 pounds per ampere-year. Corrosion could compromise structural integrity in a building not designed to withstand corrosive soils.

Seismic Considerations

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act is a California state law passed in direct response to the 1971 San Fernando earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. The act requires the State Geologist to delineate "Earthquake Fault Zones" along faults that are "sufficiently active" and "well defined." A sufficiently active fault is defined as one that has evidence of Holocene surface displacement. A fault is considered well defined if its trace is clearly detectable as a physical feature at or just below the ground surface. Both of these features must be present for a fault to be zoned under the Alquist-Priolo Earthquake Fault Zoning Act (CGS, 2007).

Seismic Intensity: The Modified Mercalli Intensity Scale

The Modified Mercalli Intensity (MMI) scale (**Table 3.1-2**) is a common measure of earthquake effects due to ground shaking intensity. The MMI values for intensity range from I (earthquake not felt) to XII (damage nearly total), with damage levels representing the estimated overall level of damage that will occur for various MMI intensity levels. Intensities ranging from IV to X could cause moderate to significant structural damage. The damage, however, will not be uniform. Some buildings will experience substantially more damage than the overall level, and others will experience substantially less damage. The age, material, type, method of construction, size, and shape of a building all affect its performance.

Magnitude

On a Richter scale, the magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs, with adjustments made for the distance between the seismograph and the epicenter of the earthquake. Magnitude is expressed in whole numbers and decimal fractions. A magnitude 5.3 would be a moderate earthquake, and a strong earthquake could be a magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude, which corresponds to the release of about 31 times more energy.

Earthquakes with magnitude of about 2.0 or less are usually called microearthquakes. They are typically recorded only on local seismographs and usually not felt by people. Events with magnitudes of about 4.5 or greater are strong enough to be recorded by sensitive seismographs all over the world. Events with magnitudes of 8.0 or higher, such as the 1964 Good Friday earthquake in Alaska, are considered great earthquakes. The Richter scale is not used to express damage (USGS, 2006).

Liquefaction

Soil liquefaction can occur in seismic conditions. Liquefaction is the temporary transformation of saturated, non-cohesive material from a relatively stable, solid condition to a liquefied state as a result of increased soil pore water pressure. Soil pore water pressure is the water pressure between soil particles. Liquefaction can occur if three factors are present: seismic activity, loose sand or silt, and shallow groundwater.

TABLE 3.1-2
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015 g[a]
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015 g
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibration similar to a passing of a truck. Duration estimated.	< 0.0015 g
IV.	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015 g-0.02 g
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03 g-0.04 g
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06 g-0.07 g
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motorcars.	0.10 g-0.15 g
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motorcars disturbed.	0.25 g-0.30 g
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50 g-0.55 g
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60 g
XI.	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60 g
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60 g

Note: [a] g is gravity = 980 centimeters per second squared.
Source: Bolt, 1988.

Liquefaction potential has been found to be greatest where the groundwater is within a depth of 50 feet or less, and submerged loose, fine sands occur within that depth. Liquefaction potential decreases with larger soil particle size and greater depth to groundwater, and increases with greater ground acceleration and longer duration of shaking.

Lateral Spreading

Lateral spreading can occur during a seismic event in the form of horizontal ground displacement, and is typical where the ground surface is relatively flat and comprised of alluvium or depositional sediment. This movement in soils is generally due to failure along a weak sub-layer that is formed within an underlying liquefied layer. Cracks develop within the weakened material, while blocks of soil move laterally toward the free face.

3.1.2 BARSTOW SITE

Geological Setting

The Barstow site lies within San Bernardino County, which is situated in the Mojave Desert Geomorphic Province (**Figure 3.1-1**). This geomorphic province occupies approximately 25,000 square miles and is bounded by the San Andreas Fault and the Transverse Ranges to the west, the Garlock Fault and the Tehachapi Mountains to the north (in Kern County), the Nevada State line to the east, and the San Bernardino/Riverside County boundary to the south. Portions of Los Angeles and San Bernardino Counties lie within this province. Erosion features such as broad alluvial basins that receive non-marine sediments from the adjacent uplands dominate the Mojave Desert region. Numerous playas, or ephemeral lakebeds within internal drainage basins, also characterize the region. Throughout this province, small Hills (some the remnants of ancient mountainous topography) rise above the valleys that are surrounded by younger alluvial sediments. The highest elevation approaches 4,000 feet above mean sea level (amsl), and most valleys lie between 2,000 to 4,000 feet amsl (SCAG, 2003).

Topography

Figure 3.1-2 shows the topography of the Barstow site. Elevations on the Barstow site range from approximately 2,413 feet amsl at the eastern property line, to approximately 2,392 feet amsl at the western property line. The mean slope is 1.5 percent, with the rise distributed more densely over the eastern portion of the run.

Soils and Geology

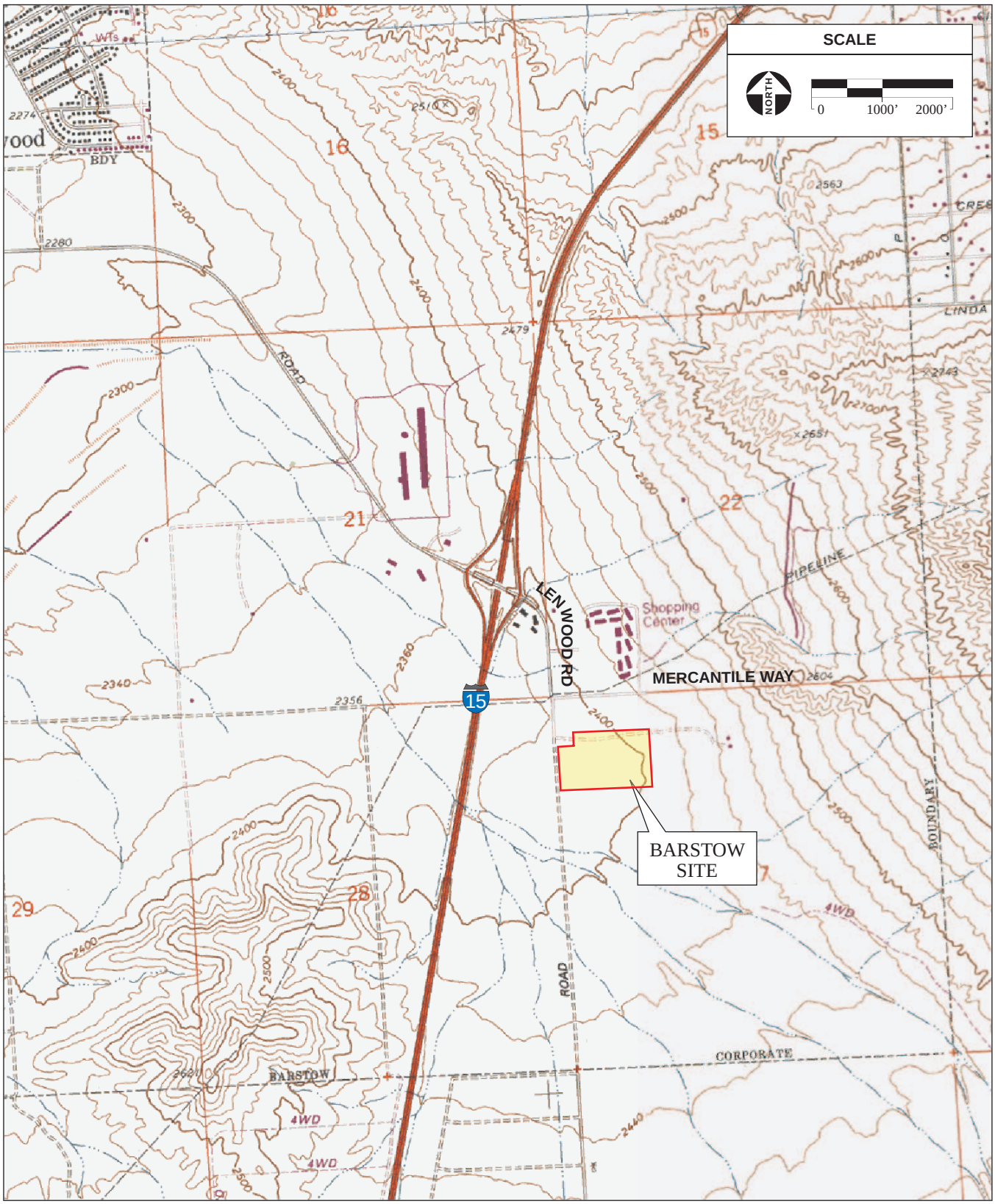
As shown on **Figure 3.1-3**, the Barstow site is comprised of Cajon Sand soils. The Cajon series generally consist of mixed thermic, sandy entisols, or torripsamments. These are deep, excessively drained soils found primarily on alluvial fans, and at elevations of 1,800-3,500 feet (USDA, 1986). The Barstow site's soil capability subclasses and limitations are outlined in **Table 3.1-3**. Soils on the site are not prone to expansion or corrosivity.

TABLE 3.1-3
PROJECT SOIL LIMITATIONS - BARSTOW SITE

Soils	Depth	Permeability	Drainage	Erosion	Shrink/ Swell	Runoff	Capability Sub-class
Cajon Sand 2-9% slope	60 Inches	Rapid	Excessively Drained	Slight to moderate	Low	Slow	IIIe-1
Source: USDA, 1986.							

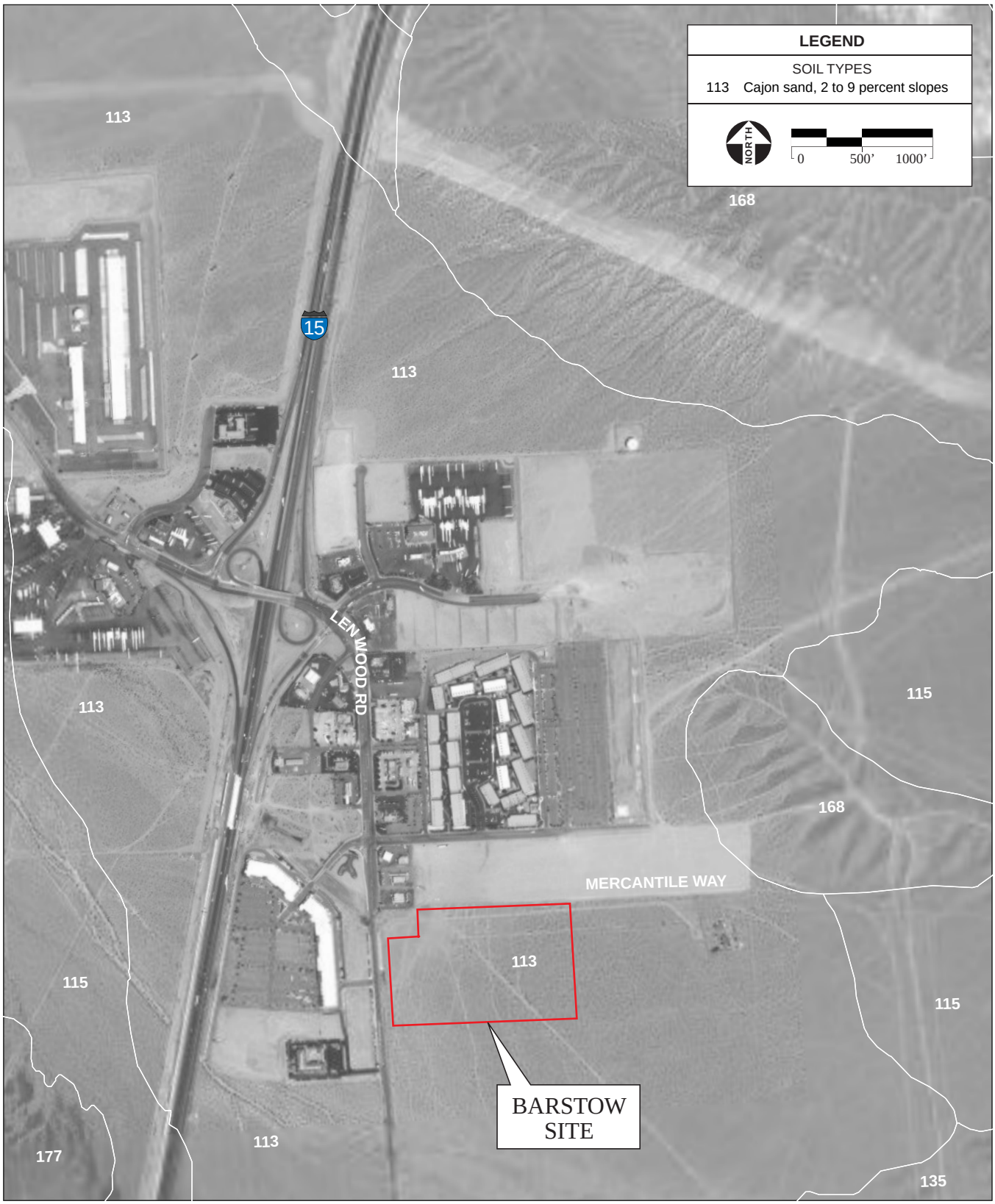
SOURCE: California Geological Survey, 2002; AES, 2011

Figure 3.1-1
California Geomorphic Provinces



SOURCE: "Barstow, CA" USGS 7.5 Minute Topographic Quadrangle, Section 27, T9N, R2W, San Bernadino Baseline & Meridian; AES, 2011

Figure 3.1-2
Barstow Site Topography



SOURCE: USDA Soil Conservation Service, 1975-1978; GoogleEarth, 2006; AES, 2011

Figure 3.1-3
Barstow Site Soils

Seismicity

The Barstow site is located in a seismically active region (**Figure 3.1-4**). The Lenwood Fault, which runs diagonally from northwest to southeast across the City of Barstow, is a right-lateral strike-slip fault that is somewhat segmented. Although it has not produced any historic earthquakes, its Holocene displacement (less than 11,000 years) qualifies it as a "sufficiently active" fault, capable of producing a 7.5 magnitude earthquake. While the Lenwood Fault is on the California Department of Conservation's list of Alquist-Priolo Fault Zones, the Barstow site is a sufficient distance (greater than 500 feet) from the fault and is therefore not considered to be within an Alquist-Priolo Fault Zone. There are no documented faults directly beneath the Barstow site (USGS and CGS, 2006).

The U.S. Geological Survey (USGS) has mapped the region by maximum peak acceleration based on historic groundshaking events and regional faulting. **Figure 3.1-5** shows that the Barstow site is located within a region having a 10 percent chance of exceeding 0.25g acceleration in a seismic event, to which **Table 3.1-2** assigns a corresponding MMI Intensity Value of VIII. At this level of acceleration, damage is slight in specially designed structures and considerable in ordinary substantial buildings, with partial collapse (Bolt, 1988). Peak ground accelerations associated with faults in the vicinity of the Barstow site are summarized in **Table 3.1-4**.

TABLE 3.1-4
DETERMINISTIC SEISMIC CHARACTERISTICS – BARSTOW SITE

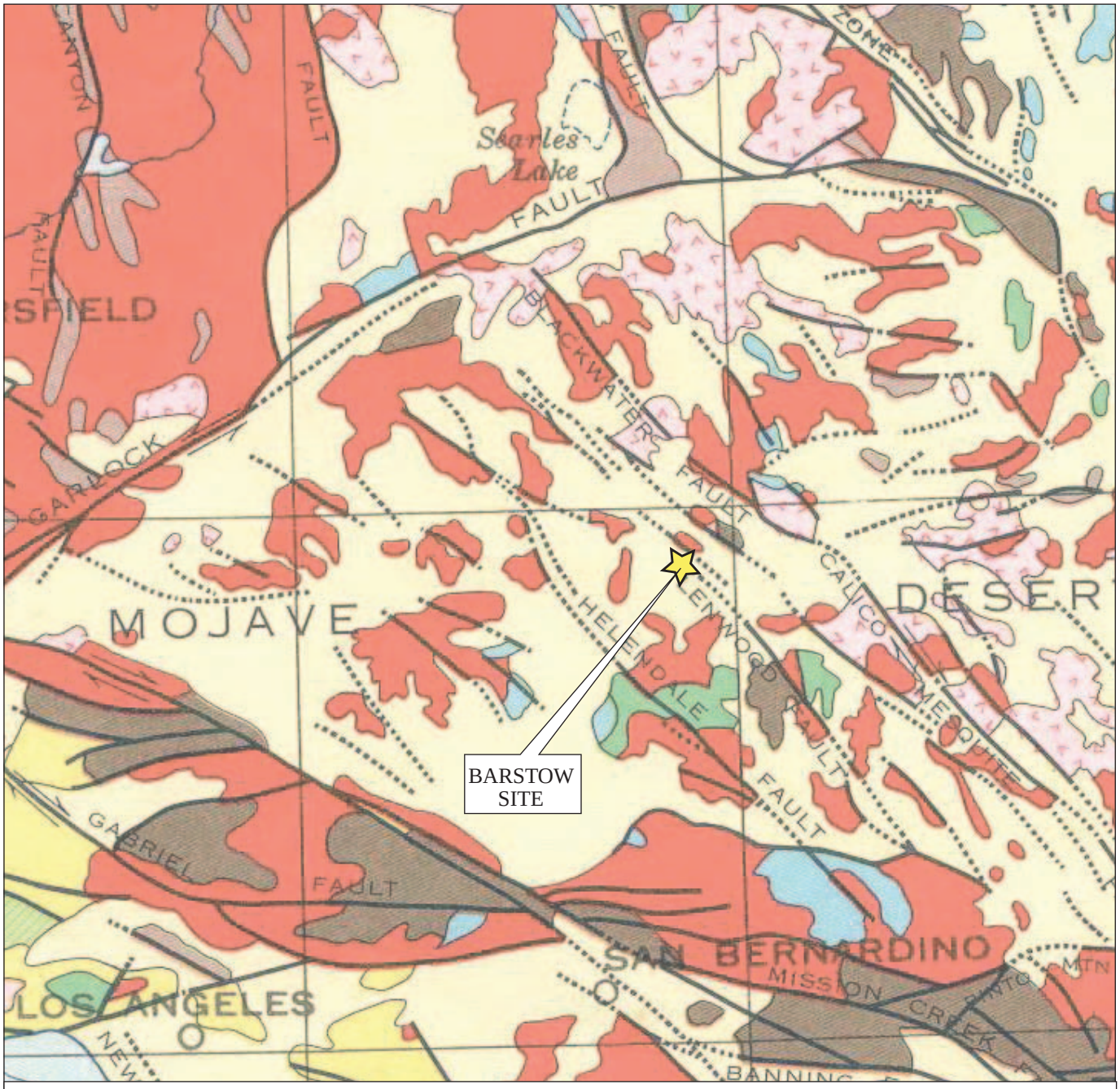
Fault Name	Approximate Distance From Site (miles)	Maximum Considered Earthquake Moment Magnitude (Mw)	Peak Horizontal Ground Acceleration (g)
Lenwood	1.0	7.5	0.29
Camp Rock	10	6.8	0.29
Calico	13	7.3	0.29
Helendale	15	7.3	0.29
Source: USGS and CGS, 2006			

Liquefaction

On average, groundwater in the vicinity of the Barstow site is at a level of 230.7 feet below ground surface; therefore, there is no substantial risk of liquefaction in the project area (DWR, 2008).

Lateral Spreading

Because there is no substantial risk of liquefaction in the project area, it is also unlikely that lateral spreading will occur.



LEGEND

SEDIMENTARY AND VOLCANIC ROCKS

- Cenzoic nonmarine (continental) sedimentary rocks and alluvial deposits
- Cenzoic marine sedimentary rocks
- Cenzoic volcanic rocks
- Mesozoic sedimentary and volcanic rocks older than the Nevaden oregeny, in places strongly metamorphosed.
- Pre-Cenzoic metamorphic rocks of unknown age.
- Late Mesozoic (latest Jurassic and Cretaceous) shelf and slope sedimentary rocks
- Late Mesozoic (latest Jurassic and Cretaceous) eugeosynclinal rocks of the Franciscan Formation
- Paleozoic sedimentary and volcanic rocks; in places strongly metamorphosed; includes some rocks of Triassic age in Klamath Mountains; includes some late Precambrian sedimentary rocks in Great Basin
- Precambrian rocks of all types including coarse-grained intrusives

INTRUSIVE IGNEOUS ROCKS

- Granitic rocks chiefly of Mesozoic age
- Ultramafic rocks chiefly of Mesozoic age

Contact

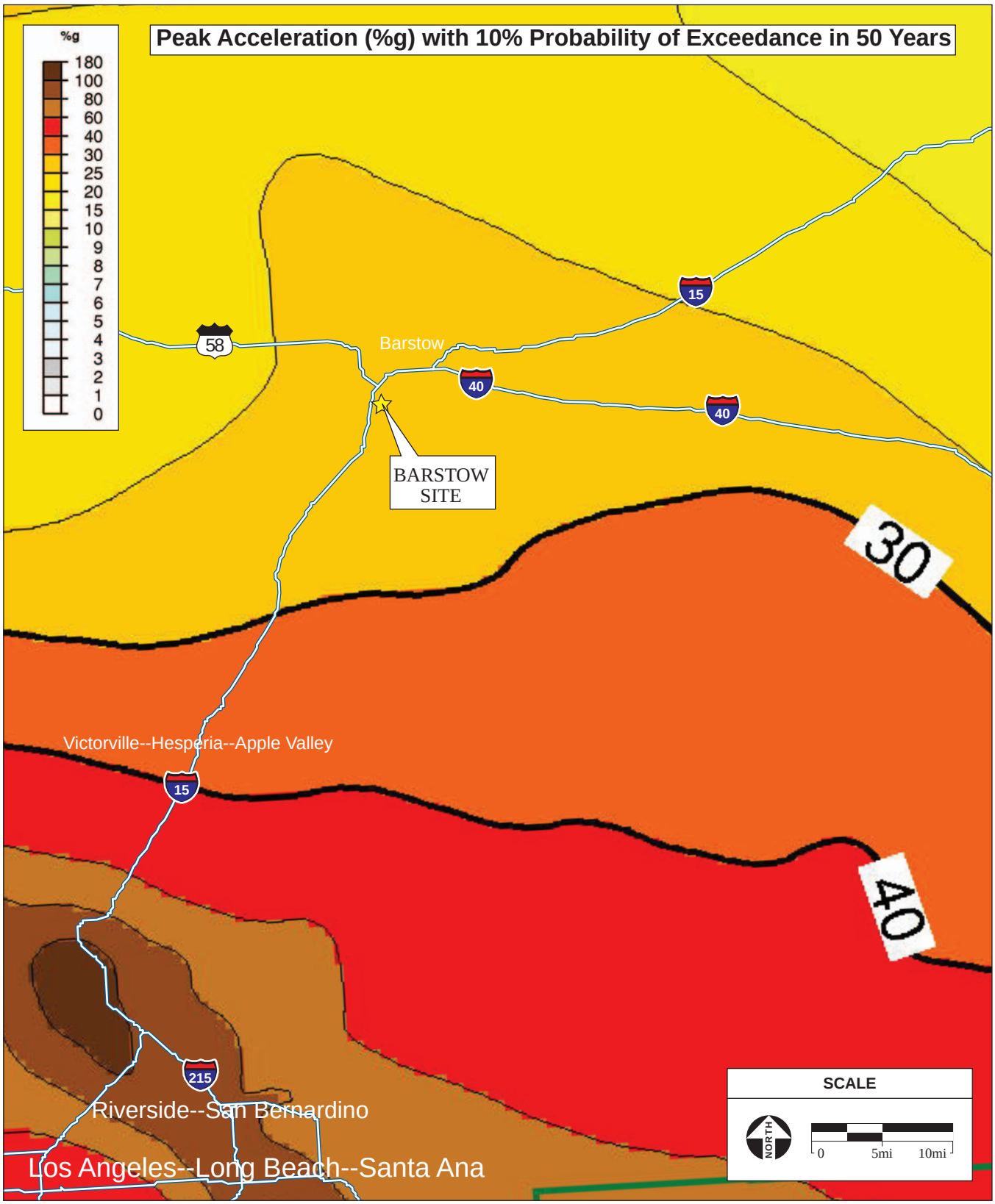
Fault, dotted where concealed; includes low-angle faults; arrows indicate direction of relative movement on strike-slip faults

NORTH

0 10mi 20mi

SOURCE: USGS and California Division of Mines and Geology, 1966; AES, 2011

Figure 3.1-4
Barstow Site Geology



SOURCE: USGS National Seismic Mapping Project, 1996; ESRI Data, 2004; AES, 2011

Figure 3.1-5
Barstow Site Earthquake Susceptibility

Mineral Resources

Common rock types and their associated mineral assemblages common to San Bernardino are as follows:

- Regional Late Mesozoic eugeosynclinal rocks of the Franciscan Formation
- Late Mesozoic shelf and slope sedimentary rocks
- Cenozoic marine sedimentary rocks
- Cenozoic nonmarine sedimentary rocks and alluvial deposits
- Cenozoic volcanic rocks, granitic rocks chiefly of Mesozoic age
- Ultramafic rocks chiefly of Mesozoic age

The rock types described above support regional operations of limited mining facilities for the production of granitic and sandstone gravel (USGS, 1960).

The City of Barstow General Plan (1997 Update) generally indicates the nearby Mojave River Corridor as a significant mineral resource, based on the mineral land classification maps of the California Division of Mines and Geology. This corridor is both an existing and a potential source of concrete aggregate deposits. No mining activity takes place on the Barstow site.

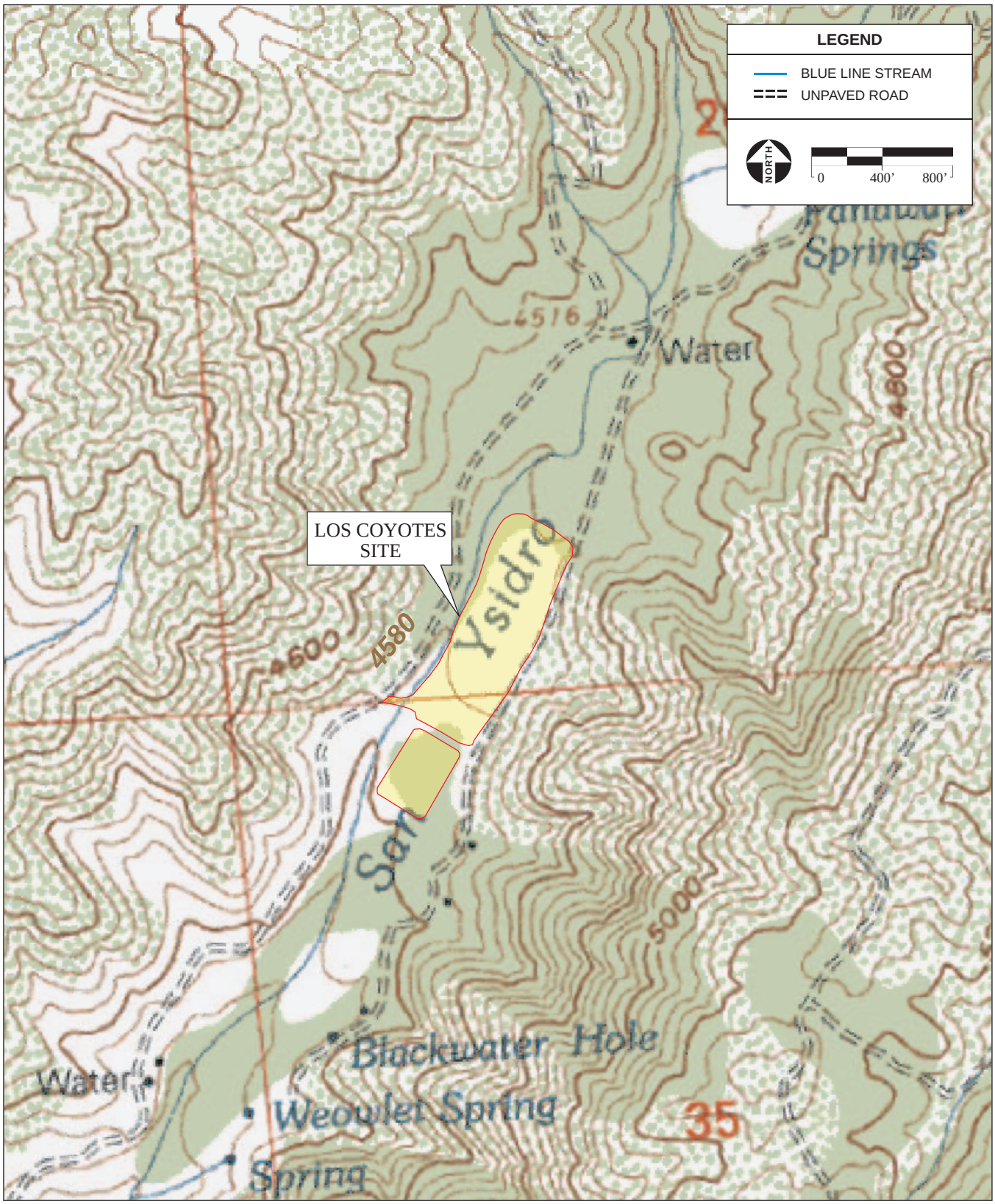
3.1.3 LOS COYOTES SITE

Geological Setting

The Los Coyotes site lies within North San Diego County, which is situated in the Peninsular Ranges Geomorphic Province (**Figure 3.1-1**). The Peninsular Ranges geomorphic province extends south from the Transverse Ranges, passing through the Los Angeles Basin and continuing 775 miles south of the U.S.-Mexico border. The Peninsular Ranges are bounded on the west by the Transverse Ranges and on the east by the Colorado Desert and include Orange County, the San Jacinto Mountains, and the Coachella Valley in the central portion of Riverside County. The ranges are comprised of a series of northwest-southeast trending mountains that are separated by several active faults, including the San Jacinto and Elsinore Fault zones.

Topography

The Los Coyotes site ranges in elevation from approximately 4,500 feet amsl on its southwestern corner, to approximately 4,585 feet amsl on its northeastern corner. **Figure 3.1-6** shows the topography of the Los Coyotes site. The Los Coyotes site is sloped between 3 and 6 percent from the northeastern corner to the southwestern corner, and is adjacent to hills exceeding 500 feet amsl in places. The San Ysidro Creek flows through the site along the western boundary. The surrounding topography is extremely mountainous, with slopes exceeding 17% on more than 75% of the reservation.



SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 3.1-6
Los Coyotes Site Topography

Soils and Geology

The Los Coyotes site consists of Mottsville series loamy coarse sand (MvC and MvD) and loamy alluvial sand (Lu) (**Figure 3.1-7**). Mottsville series soils are defined as consisting of excessively drained, very deep, loamy coarse sands that in places were formed in sandy sediments either transported from or weathered in place from granitic rock. Loamy alluvial sands on site are generally associated with fluvial deposition, such as seasonal swelling of the San Ysidro Creek (USDA, 1979). Soils on the site are not prone to expansion or corrosivity.

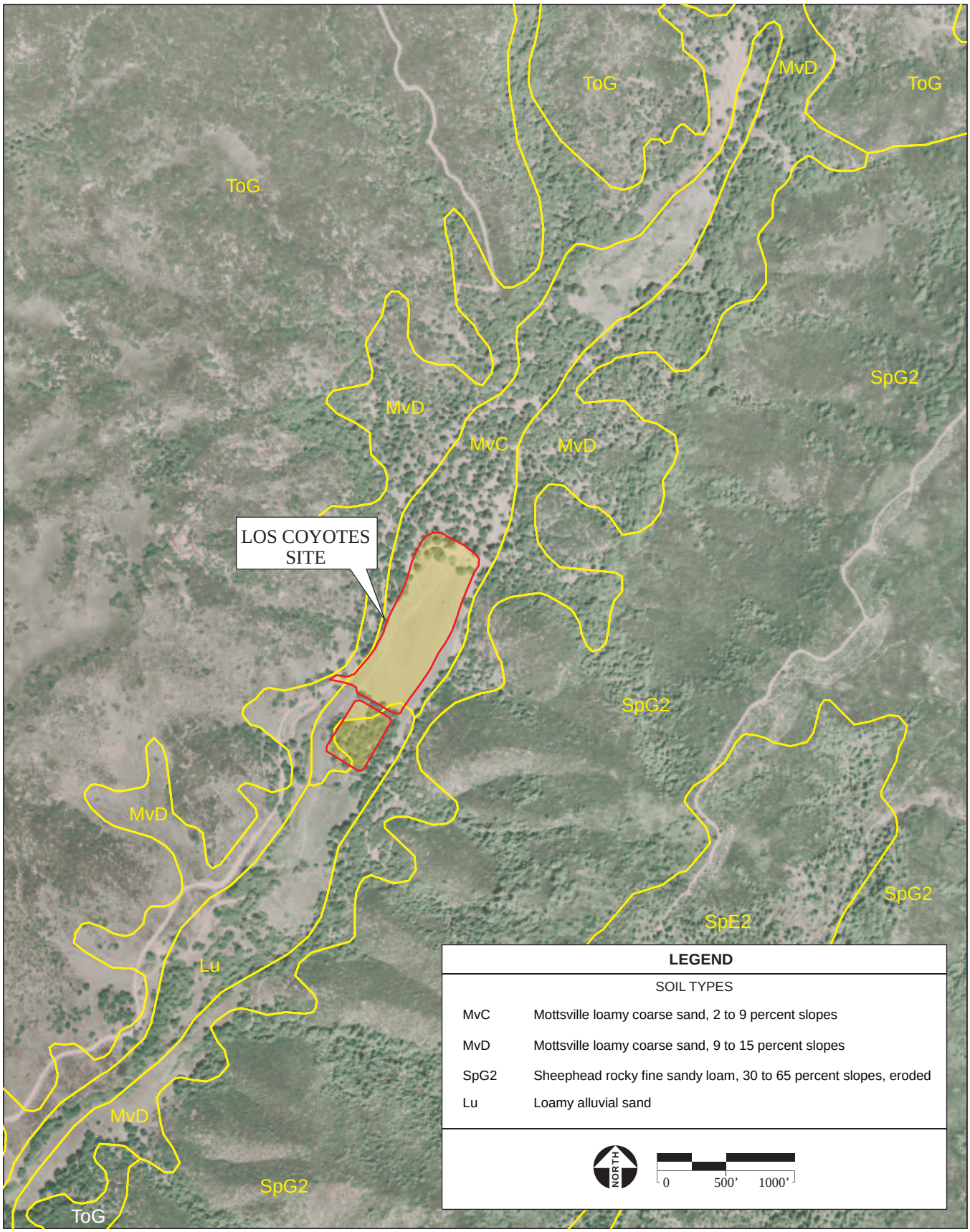
The granitic origin of these soils correlates with the surrounding geological formation process, which began in the Jurassic and Late Cretaceous eras, wherein a series of volcanic islands off the coastline of today's San Diego region were associated with the formation of a granitic and gabbroic batholith beneath the region. Los Coyotes site soil capability subclasses and limitations are outlined in **Table 3.1-5**.

TABLE 3.1-5
PROJECT SOIL LIMITATIONS – LOS COYOTES SITE

Soils	Depth	Permeability	Drainage	Erosion	Shrink/ Swell	Runoff	Capability Sub-class
Mottsville Loamy Coarse Sand (MvC) 2-9% slope	60 Inches	Very Rapid	Excessively Drained	Slight to Moderate	Low	Slow to Medium	IVsc-4
Mottsville Loamy Coarse Sand (MvD) 9-15% slope	60 Inches	Very Rapid	Excessively Drained	Moderate	Low	Medium	IVsc-4
Loamy Alluvial Sand (Lu) 0-5% slope	60 Inches	Moderate	Poorly Drained	Slight	Low	Slow	IIw-2
Source: USDA, 1979.							

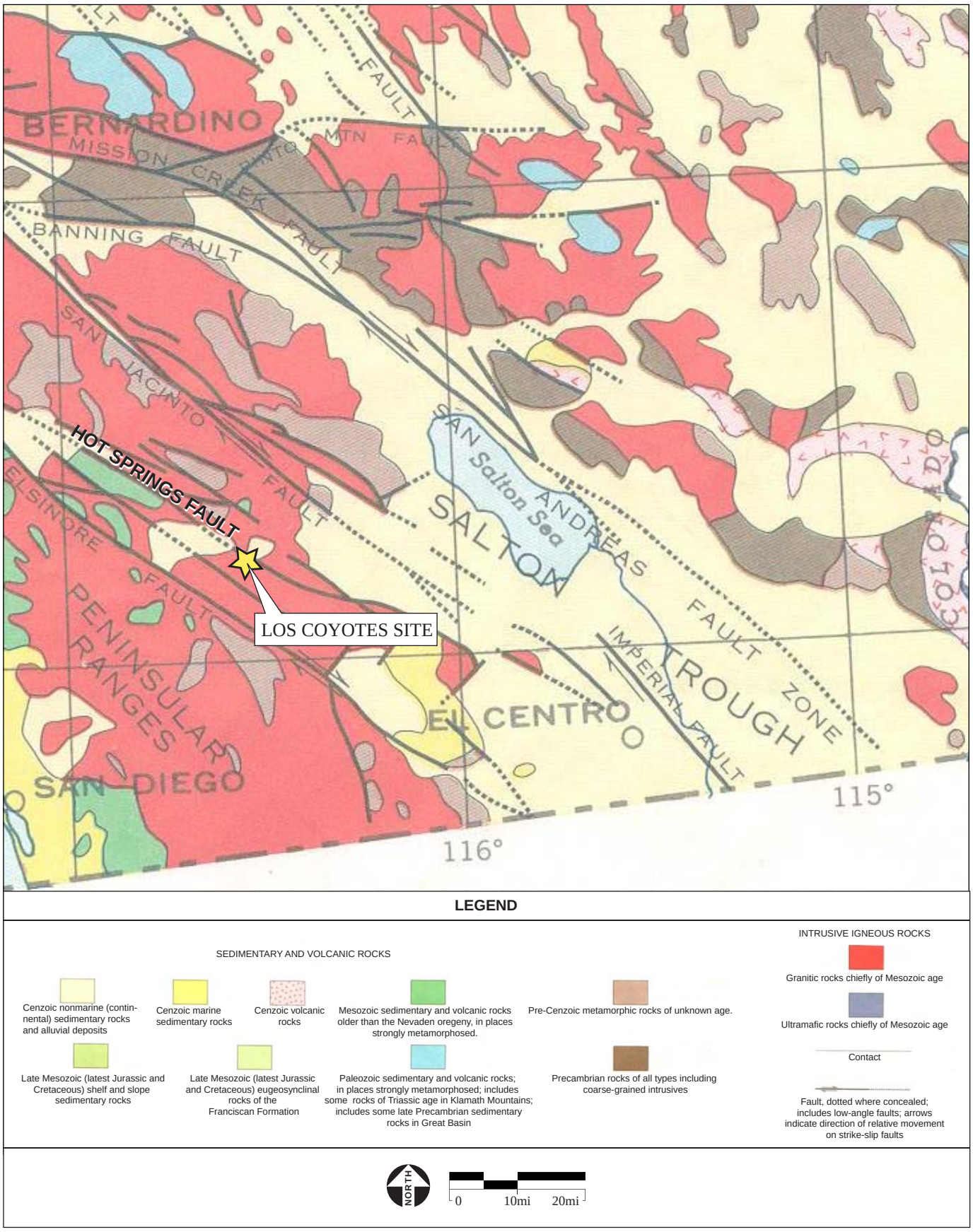
Seismicity

The Los Coyotes site is located in a seismically active region. The Elsinore Fault and the Coyote Creek Fault are parallel to one another and run diagonally from northwest to southeast across San Diego County. The only mapped fault that crosses the Los Coyotes Reservation is the Hot Springs fault (USGS and CGS, 2006). **Figure 3.1-8** shows the geology and faulting in the region of the Los Coyotes site.



SOURCE: USGS Aerial Photo dated 4/1/04; USDA Soil Survey of San Diego County; AES, 2011

Figure 3.1-7
Los Coyotes Site Soils



SOURCE: USGS and California Division of Mines and Geology, 1966; AES, 2011

Figure 3.1-8
Los Coyotes Site Geology

The site is located within a region having a potential peak acceleration of 0.6g, with a 10 percent chance of exceedance in 50 years, as shown in **Figure 3.1-9**. **Table 3.1-2**, above, indexes the type of damage to be anticipated in such an event. At this level of acceleration, some well-built wooden structures would be destroyed; most masonry and frame structures would be destroyed along with their foundations; and the ground would be badly cracked. Other damage includes the bending of railways and considerable landslides from riverbanks and steep slopes. Sand and mud would be shifted and water splashed over its banks. Peak ground accelerations associated with faults in the vicinity of the Los Coyotes site are summarized in **Table 3.1-6**.

TABLE 3.1-6
DETERMINISTIC SEISMIC CHARACTERISTICS – LOS COYOTES SITE

Fault Name	Approximate Distance From Site (miles)	Maximum Considered Earthquake Moment Magnitude (Mw)	Peak Horizontal Ground Acceleration (g)
Hot Springs	0.25	6.1	0.60
Coyote Creek	12.0	7.3	0.78
Elsinore	12.5	7.3	0.76
Source: USGS and CGS, 2006			

Liquefaction

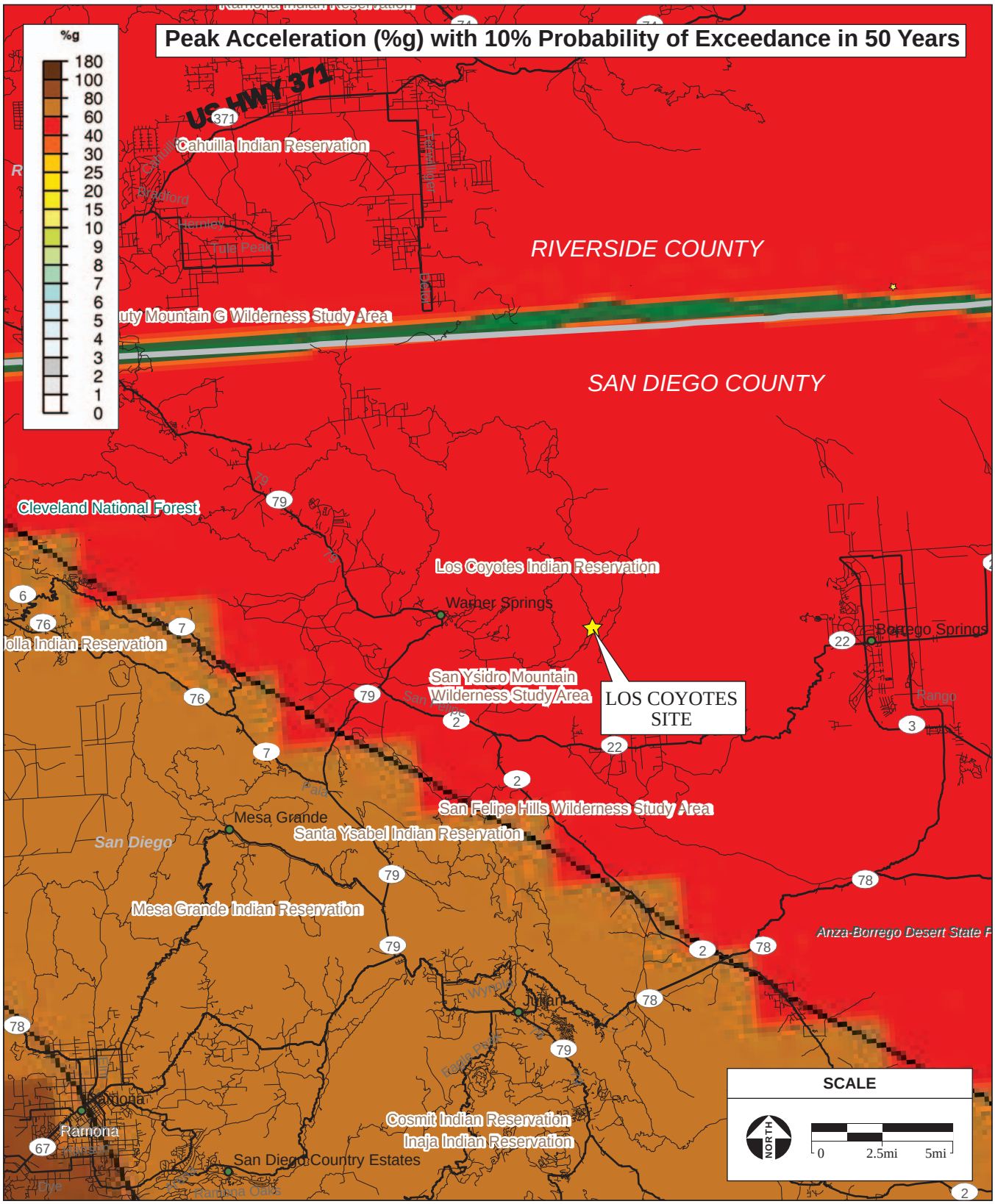
The potential for liquefaction in San Diego County is limited to the lower San Dieguito River Valley or the portion of Borrego Valley near Borrego Sink (San Diego County, 1979). Neither of these locations is in the vicinity of the Los Coyotes site. Furthermore, the soils on the site are coarse to loamy, not fine or silty. Liquefaction on this site is unlikely.

Lateral Spreading

Lateral spreading is commonly associated with liquefaction and is not likely to occur on the Los Coyotes site.

Mineral Resources

Rock types in San Diego County consist of Cretaceous Age granitic rocks, including diorites, gabbros and quartz diorites; Mesozoic Age metamorphic rocks such as schist, gneiss, and marble; Tertiary Age flat-lying, consolidated sedimentary rocks, consisting of sandstone, conglomerate, and mudstone; and recent alluvium, including sand, gravel, silt, and clay (San Diego County, 1979).



SOURCE: USGS National Seismic Mapping Project, 1996; ESRI Data, 2004; AES, 2011

Figure 3.1-9

Los Coyotes Site Earthquake Susceptibility

3.10 NOISE

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of noise contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.10.1 ACOUSTICAL BACKGROUND AND TERMINOLOGY

Noise is often defined as unwanted sound. Pressure variations occurring frequently enough (at least 20 times per second) that the human ear can detect are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called hertz (Hz).

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness.

3.10.2 NOISE EXPOSURE AND COMMUNITY NOISE

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor (L_{dn}), and shows very good correlation with community response to noise. **Table 3.10-1** contains definitions of acoustical terminology used in this section. **Table 3.10-2** shows examples of noise sources that correspond to various sound levels.

The Day-Night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. Additional weight is placed on nighttime readings based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. L_{dn}-based noise standards are commonly used to assess noise effects associated with traffic, railroad, and aircraft noise sources.

TABLE 3.10-1
ACOUSTICAL TERMINOLOGY

Term	Definition
A-weighted	The A-weighted sound level has been shown to correlate with subjective responses and two sounds judged to be of similar loudness would produce similar dB(A) values, although their un-weighted dB values would vary considerably. The A-weighting compares well with other noise sources. It is, therefore, the most widely used.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 to 10 p.m.) weighted by a factor of 3 and nighttime hours weighted by a factor of 10 prior to averaging.
L_{dn}	The 24-hour day and night A-weighed noise exposure level that accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.
L_{eq}	The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Source: Beranek, 1998.	

Effects of Noise on People

The effects of noise on people fall into three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide

variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

TABLE 3.10-2
TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES

Loudness Ratio	Decibels (dBA)	Description
128	130	Threshold of pain.
64	120	Jet aircraft take-off at 100 feet.
32	110	Riveting machine at operator's position.
16	100	Shotgun at 200 feet.
8	90	Bulldozer at 50 feet.
4	80	Diesel locomotive at 300 feet.
2	70	Commercial jet aircraft interior during flight.
1	60	Normal conversation speech at 5 to 10 feet.
1/2	50	Open office background level.
1/4	40	Background level within a residence.
1/8	30	Soft whisper at 2 feet.
1/16	20	Interior of recording studio.
Source: Beranek, 1998.		

Human reaction to a new noise can be estimated through comparison of the new noise to the existing ambient noise level within a given environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will likely be judged by the recipients. With regard to increases in A-weighted noise levels, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause adverse response

Noise effects on humans can be physical or behavioral in nature. The mechanism for chronic exposure to noise leading to hearing loss is well established. The elevated sound levels cause trauma to the cochlear structure in the inner ear, which gives rise to irreversible hearing loss. Though it pales in comparison to the health effects noted above, noise pollution also constitutes a significant factor of annoyance and distraction in modern artificial environments:

- The meaning listeners attribute to the sound influences annoyance; if listeners dislike the noise content, they are annoyed

- If the sound causes activity interference (for example, sleep disturbance), it is more likely to annoy
- If listeners feel they can control the noise source, it less likely to be perceived as annoying
- If listeners believe that the noise is subject to third party control, including police, but control has failed, they are more annoyed
- What is music to one is noise to another; the perceived unpleasantness of the sound causes annoyance.

Generally, most noise worldwide is generated by transportation systems, principally motor vehicle noise, but also including aircraft noise and rail noise. Poor urban planning may also give rise to noise pollution. Besides transportation noise, other prominent sources are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems.

Stationary point sources of noise, including stationary mobile sources, such as idling vehicles, attenuate (lessen) at a rate of six to nine dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles would typically attenuate at a lower rate, approximately four to six dBA.

Sensitive Receptors

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial and industrial land uses. A sensitive receptor is defined as any living entity or aggregate of entities whose comfort, health, or well being could be impaired or endangered by the presence of noise.

3.10.3 EXISTING NOISE LEVELS AND SOURCES

Barstow Site

Sources of Noise

Although the Barstow site is primarily open and undeveloped, several sources of noise are located in the immediate vicinity.

Noise from traffic on I-15 and activities associated with the Tanger Outlet Mall and several retail establishments (fast-food and motels) all contribute to an existing daytime ambient noise level in the area. Night time noise levels are much lower due to reduce traffic volumes on I-15 and a large percentage of businesses in the vicinity of the project site are closed. Based on existing day and night time activity and the proximity of noise sources to the project site, it is estimated that the day/night ambient noise level in the vicinity of the Barstow site is between 55 to 65 Ldn, dBA or approximately 65 CNEL.

Sensitive Receptors

The nearest sensitive receptor is a motel located approximately 600 feet west of the Barstow project site. The nearest residence is located approximately one mile west of the project site, and Lenwood School is located approximately two miles northwest of the project site.

Los Coyotes Site

Sources of Noise

The Los Coyotes site is located within six miles of the unincorporated community of Warner Springs between the Cleveland National Forest and the Anza-Borrego Desert State Park, east of Mount Palomar. The area is isolated from major noise sources and the only existing noise source of significance is local activity. Based on the existing traffic volumes on Camino San Ignacio Road, noise levels in the area are an average of about 35 to 45 dBA, which is typical of rural environments. Nighttime noise levels are about 10 decibels lower.

Sensitive Receptors

There are no off-reservation noise receptors within approximately three miles of the project site. Remaining land in the vicinity is undeveloped. Noise sensitive receptors are located along Camino San Ignacio Road approximately 50 feet from the centerline of the roadway near the intersection of SR-79 and Camino San Ignacio Road. .

3.11 HAZARDOUS MATERIALS

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles relating to hazardous materials contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.11.1 IDENTIFICATION OF HAZARDOUS MATERIALS

Hazardous materials are those materials that may pose a material risk to human health or the environment. These materials are subject to numerous laws and regulations. A Phase I Environmental Site Assessment (ESA) is used to identify Recognized Environmental Conditions (RECs) on a particular site. REC refers to the presence or likely presence of conditions on a property that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. This includes hazardous substances and petroleum products, even under conditions in compliance with laws. A Phase I ESA was conducted in accordance with Bureau of Indian Affairs (BIA) guidelines and the American Society for Testing and Materials (ASTM) Standard Practice E 1527-00 for the Barstow site (**Appendix J** of the Draft EIS/TEIR).

The ESA includes review of federal and state regulatory agency records and databases, interviews with local officials and property owners, site inspection and aerial photography review. Such an assessment is a requirement of the Department of the Interior to avoid financial liability for cleanup of contaminants under the Comprehensive Environmental Response, Compensation on Liability Act (CERCLA) 42 U.S.C.A. Section 9607A. Regulatory agency databases are searched for records of known storage tank sites and known sites of hazardous materials generation, storage, or contamination, or where violations pertaining to storage and/or use of hazardous materials have occurred. Sites and listings up to two miles from a point roughly at the center of project site are included in the search.

Environmental database review for the project alternatives was accomplished using the services of a computerized search firm, Environmental Data Resources, Inc. (EDR). EDR reports for the Barstow and Los Coyotes sites are in **Appendix K** of the Draft EIS/TEIR. EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement. The scope of the regulatory information search conducted for the sites included but was not limited to the following databases:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) – Identifies sites United States Environmental Protection Agency (USEPA) is currently investigating for the release or threatened release of hazardous substances pursuant to the CERCLA of 1980.
- The National Priority List (NPL) – Identifies abandoned or uncontrolled hazardous waste sites identified by the USEPA for priority remedial action under the Federal Superfund Program.
- Resource Conservation and Recovery Act (RCRA) – Identifies registered hazardous waste generators, transporters, treatment, storage, and disposal facilities in the vicinity of the study area.

The databases maintained under this Act include:
  - Generators and Violators List (RCRA-G)
  - Large Quantity Generators (RCRA-LQG)
  - Small Quantity Generators (RCRA-SQG)
  - RCRA Corrective Actions List (CORRACT)
  - RCRA Treatment, Storage, or Disposal List (RCRATSD)
- Emergency Response Notification System (ERNS) database – Identifies USEPA documented releases of oil and hazardous substances. This database was reviewed to determine whether past spill events have occurred in the study area.
- US BROWNFIELDS database – Identifies USEPA documented properties which have been complicated by the presence or potential presence of hazardous substance, pollutant, or contaminant and safely clean up the area.
- Hazardous Materials Information Reporting System (HMIRS) – Identifies reported hazardous material spill incidents reported to DOT.
- Facility Index System/Facility Registry System (FINDS) – Identifies any criminal enforcement actions for all environmental statutes.
- ENVIROSTOR– Identifies potential or confirmed hazardous substance release properties.
- Leaking Underground Storage Tank (LUST) – Identifies reported leaking underground storage tank incidents.
- Underground Storage Tank (UST) – Identifies active UST facilities gathered from local regulatory agencies.
- Hazardous Substance Storage Container Database (HIST UST) – Identifies historical listings of UST sites.
- California Hazardous Material Incident Report System (CHMIRS) – Identifies information on reported hazardous material incidents (accidental releases or spills).
- Facility Inventory Database (CA FID UST) – Identifies historical listings of active and inactive underground storage tank locations from the State Water Resource Control Board.
- Indian UST List – Identifies USTs registered on Indian Land.
- Indian LUST – Identifies leaking underground storage tanks on Indian Land.
- Solid Waste Facilities Database (SWF/LF) – Identifies solid waste disposal facilities registered and tracked by the state. The facilities tracked include solid waste disposal sites as well as transfer and processing stations.
- Inactive Solid Waste Facilities (HIST LF) – Contains historical information of the location of abandoned landfills and solid waste disposal sites.

Each site was evaluated for visible signs of current or historic hazardous materials involvement on or in the vicinity of the site. Signs of possible hazardous materials involvement would include any indications of underground storage tanks existing on the site; stained soils and/or unusual odors originating from the site; indications of an excavation or removal of soils, including patched asphalt and large debris piles; and other obvious signs.

3.11.2 EXISTING CONDITIONS

Barstow Site

Descriptions of the land in the vicinity of the Barstow site are as follows: to the south is undeveloped land, to the east is the Stoddard Valley Off-Highway Vehicle (OHV) area, to the north and west are commercially developed areas surrounding the Interstate-15/Lenwood Road interchange. Businesses in the vicinity include two outlet malls, restaurants, and hotels. Telephone inquiries were made to various agencies including the local fire department and the Regional Water Quality Control Board (RWQCB) as part of the ESA. No outstanding open environmental cases with local, state, or federal regulatory agencies for the site were identified, and no reported sites in the vicinity of the Barstow site were found to be currently under remediation. A Phase I ESA conducted in accordance with the *ASTM Standard E 1527, Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* was prepared for the Barstow site (Merrell Engineering Co., 2003). As a result, the Phase I ESA concluded that no RECs exist on the Barstow site and no further studies were warranted. The Phase I ESA will be updated prior to the land being taken into trust. The Department of the Interior Policy 602 DM2 requires that a Phase I assessment be no more than 6 months old at the time of the trust acquisition. The update is required to ensure that no changes have occurred regarding the presence of hazardous material since the Phase I ESA documenting the original conditions on the site (**Appendix J** of the Draft EIS/TEIR).

Additional site reconnaissance conducted on May 3 and 4, 2006 confirmed that the Barstow site is undeveloped with the exception of concrete and asphalt fragments as well as structural debris. None of these remains (ferrous metal, plastics, modern window glass, and electrical wire) are hazardous materials. There were no stained soils, strong chemical odors, or other signs of hazardous materials present during the site visit.

An updated database report for the Barstow site was reviewed in March 2006 (EDR, 2006a) and February 2009 (EDR, 2009a). The Barstow site was not listed on federal or state regulatory agency databases that were searched by EDR. The EDR report listed one site in the vicinity of the Barstow site. A Chevron Station was listed on the CA FID UST and HIST UST databases due to the presence of two 10,000-gallon USTs one 5,000-gallon UST containing gasoline and one 1,000-gallon UST containing waste oils. Based on the current regulatory status and lack of violations reported, this site is not considered to represent a likely past, present, or material threat of release on the Barstow site (**Appendix K** of the Draft EIS/TEIR).

Los Coyotes Site

The Los Coyotes site is located on undeveloped Tribal land situated on an interior portion of the Reservation. A site visit in May 2006 revealed no visual indications of stained soils, unauthorized dumping, petrochemical storage, or other hazardous materials involvement on the site. Areas adjacent to the project site are also undeveloped.

Observations made during the May 2006 site visit of surrounding properties revealed no threat to the environment quality of the Los Coyotes site. AES reviewed an updated database report for the Los Coyotes site in April 2006 (EDR, 2006b) and February 2009 (EDR, 2009b). The Los Coyotes site was not listed on any regulatory agency database that was searched by EDR. There were no adjacent sites listed with hazardous materials releases that would affect the surface and subsurface conditions on the

Los Coyotes site **(Appendix K** of the Draft EIS/TEIR**).**

• 3.12 AESTHETICS

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of aesthetics contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.12.1 VIEWSHED CHARACTERISTICS

A viewshed comprises one or more viewing corridors, or vistas. Each vista provides a line-of-sight that can be characterized uniquely from among other vistas within the viewshed. The following constituent elements compose the visual experience within each vista:

- Clarity in Line of Sight—the overall visibility of the object within the viewshed, influenced by such factors as trees, buildings, topography or any other potential visual obstruction within the viewshed.
- Duration of Visibility—the amount of time the object is exposed to viewers within the viewshed. For example, a passing commuter will experience a shorter period of viewing time than a resident within the viewshed.
- Proximity of the Viewer—the effects of foreshortening due to the distance of the viewer from the object will influence the dominance of the object in the perspective of the viewer within the viewshed.
- Number of Viewers—the number of viewers anticipated to experience the visual character of the object in forward-oriented view (i.e., not through a rear-view mirror). A densely populated residential district or a busy highway within the viewshed of the object would present more viewers than unpopulated areas.

3.12.2 BARSTOW SITE

Local Plans and Ordinances

Development in the area of the Barstow site is guided in part by the Lenwood Specific Plan (LSP). Components of the plan relevant to the topic of aesthetics include landscaping, building height, lighting, and signage. With regard to landscaping, the LSP seeks to create a sense of project identity throughout the area (City of Barstow, 1988). Specific requirements include using undulating berms and ground covers, as well as planting trees of similar species. Light fixtures are limited to 30 feet high, and are prohibited from extending above the roofline of the building. According to the LSP, lighting must be designed to confine direct rays to the premises. Types of signage prohibited by the LSP include roof signs, flashing signs, and animated signs. Signs are not to exceed 150 square feet, and must not extend above the roofline of the building. The name of the business shall be the dominant message on the sign, and the sign must be architecturally compatible with the building.

Barstow Site Viewshed

The Barstow site lies on the outskirts of the visually developed area of the City. The topography surrounding the Barstow site inclines immediately to the northeast and to the southwest, across I-15 from the site. Upland areas also occur further south, but not in the immediate viewing area of the Barstow site. Residential areas are located approximately 2 miles northwest and approximately 1.5 miles northeast of the Barstow site. The residential area to the northeast has no view to the Barstow site as topographical features occlude these views. A partial view of the Barstow site and vicinity is afforded to a limited number of residences northwest of the site. These residences are situated on or near Main Street, in or southwest of the community of Lenwood. From the Barstow site, they are located approximately 1.8 to 3.5 miles away, in an approximately west to northwest direction. The view of the Barstow site from these residences is obscured by the two outlet malls and other commercial and retail development adjacent to the site. Other views come from surface streets in the vicinity and from I-15, which passes the Barstow site to the west and northwest.

Scenic Highways

There are no state- or county-designated scenic highways or roads adjacent to the Barstow site. The portion of I-15 extending from State Route 58 near Barstow to State Route 127 near Baker, California is eligible for designation as a State Scenic Highway (Caltrans, 2007).

3.12.3 LOS COYOTES SITE

Local Plans and Ordinances

The Los Coyotes site is located on land that is held in trust by the United States and is therefore not subject to any local or regional land use regulations of San Diego County. The Los Coyotes Tribal Council has jurisdictional authority over aesthetic matters within the Los Coyotes Reservation.

Los Coyotes Site Viewshed

The region surrounding the Los Coyotes site is generally mountainous, and it is this formation that frames the project area viewshed within its valley environment. The valley itself shapes the course of the San Ysidro Creek, which generally flows north to south adjacent to the western boundary of the Los Coyotes site. At the site, the valley floor is essentially flat and level. Oak and pine woodlands occlude the view of the site from up the valley. Likewise, the view from down the valley is occluded by groups of trees, primarily oak and pine, which traverse the valley.

The Los Coyotes site is visible from adjacent hills; from Camino San Ignacio Road, which is a dirt road that provides primary access through the area; and from Kupanil Road, which runs generally north-south atop a ridgeline formed by the mountains immediately to the east. The site is not visible from locations outside the Los Coyotes Reservation.

Scenic Highways

There are no state- or county-designated scenic highways or roads in the vicinity of the Los Coyotes site. A portion of I-15, extending from State Route 76 State Route 91 is eligible for designation as a State Scenic Highway (Caltrans, 2007).

3.2 WATER RESOURCES

This section provides a description of surface water and groundwater features including watersheds, drainage, flooding, and water quality in the vicinity of the Barstow and Los Coyotes sites. Water resources designated as Waters of the U.S. are discussed in **Section 3.4**. **Section 3.8** describes existing water supply facilities and regulatory requirements for wastewater treatment and disposal. The general and site-specific profiles of water resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.2.1 BARSTOW SITE

Surface Water

The Barstow site is located in the Lahontan Basin, which for planning purposes is separated into north and south regions. The site lies within the South Lahontan Basin, which includes three major surface water systems: the Mono Lake, Owens River, and Mojave River watersheds. Locally, the project area is within the Middle Mojave hydrological unit of the Mojave River watershed, as shown in **Figure 3.2-1**. The watershed covers approximately 4,500 square miles and is bounded by the San Bernardino and San Gabriel Mountains to the south, Afton Canyon to the northeast, the Lucerne Valley to the east, and Antelope Valley to the west. The Mojave River Channel, the primary hydrologic feature in the water shed is approximately 120 miles long. The headwaters of the Mojave River are located in the San Bernardino Mountains and the river terminates at Silver Dry Lake near the community of Baker.

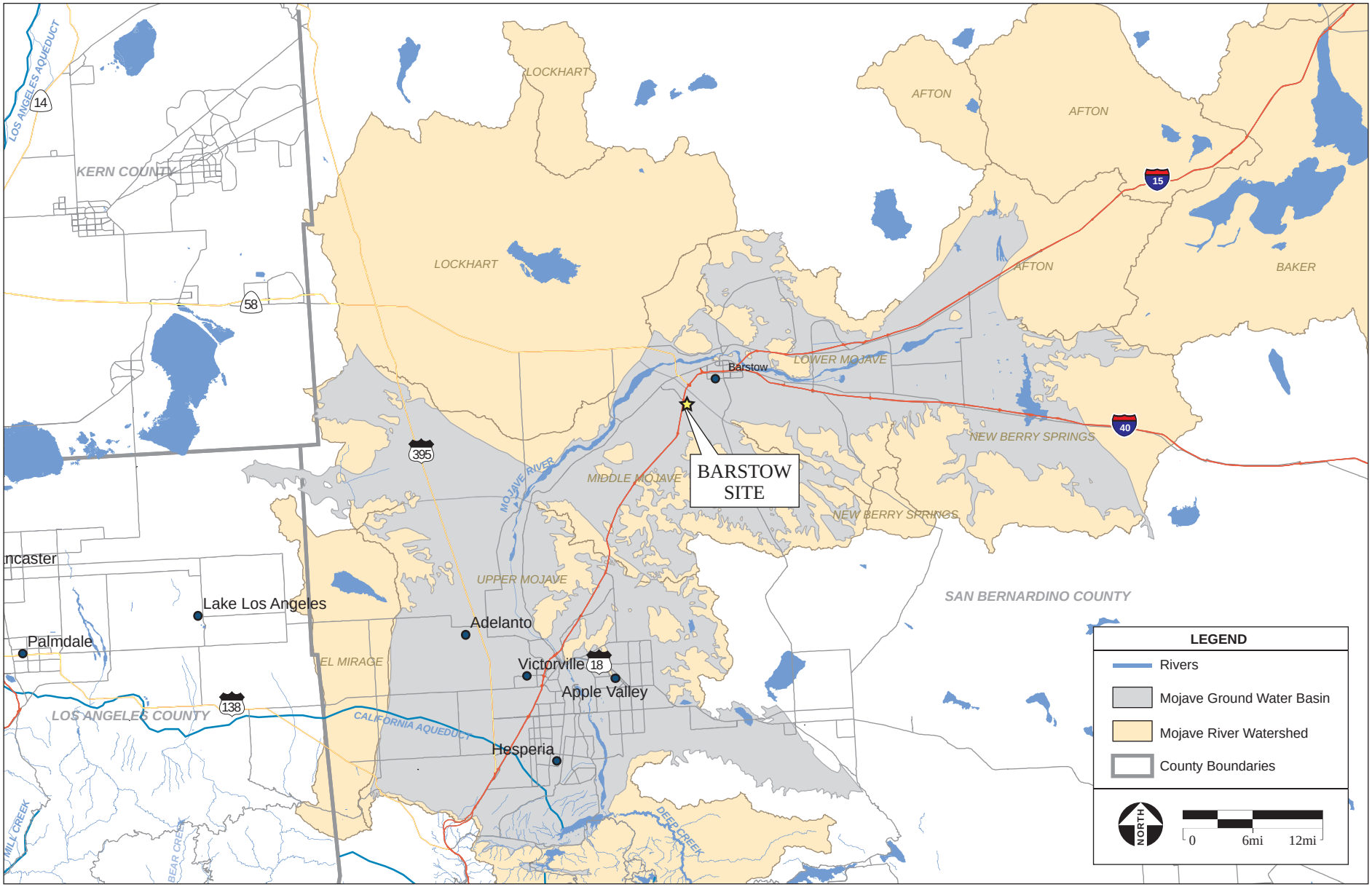
Precipitation rates in Barstow average approximately 4.4 inches per year (WRCC, 2008). In the Mojave Desert Region most of the rainfall occurs between November and April. A summer thunderstorm season occurs from July to September when violent and heavy rainstorms are possible. The project site is located approximately 4 miles from of the Mojave River (**Figure 3.2-1**). There are no significant surface water features on the Barstow project site or adjacent parcels.

Drainage

Stormwater runoff from the project site is generally characterized as sheet flow with a convergence towards the northwest corner of the site. Stormwater generated on the Barstow site discharges to Lenwood Wash, an off-site concrete drainage ditch along Lenwood Road. The concrete ditch traverses along the eastern shoulder of Lenwood Road to the south for approximately 200 feet until passing over a rock-protected section and converting to an earthen ditch. The earthen portion of the drainage ditch traverses along the road for approximately 150 feet until coming to a low section where it flows under the road to the west through a culvert (Questa, 2007).

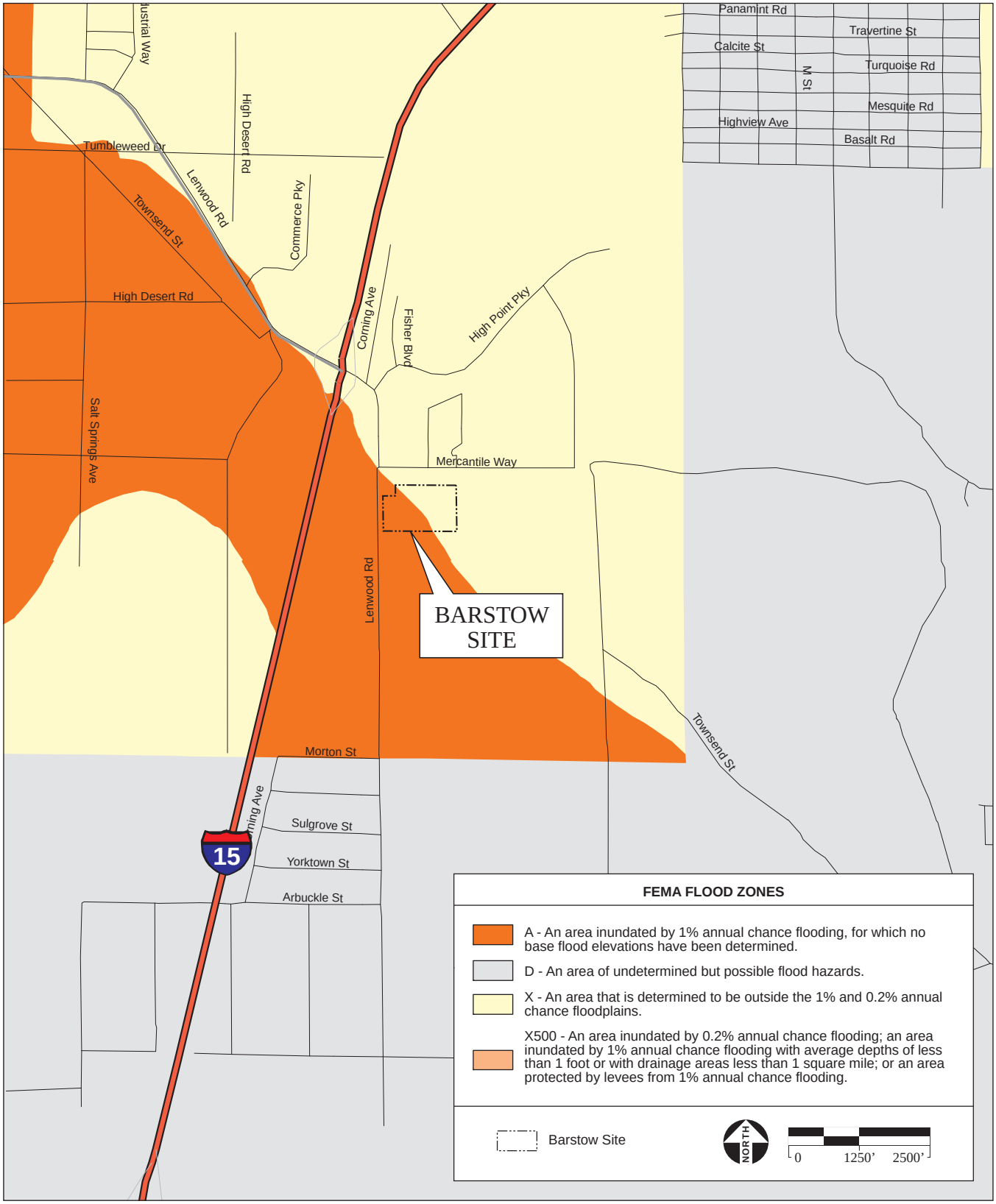
Floodplain

The southwest portion of the Barstow site lies within the Mojave River 100-year flood plain (**Figure 3.2-2**). This portion represents approximately 10.5 acres of the site that is designated Zone A0 (Depth 2). This area is defined as an area that could be inundated by a 100-year flood event with depths from 1 to 3 feet of sheet flow, for which no base flood elevations have been determined. The remaining portion of



SOURCE: ESRI Data, 2005; AES, 2011

Figure 3.2-1
Barstow Site Water Resources



SOURCE: FEMA Q3 Flood Data, 1996; AES, 2011

Figure 3.2-2
Barstow Site Flood Zone Map

the site is designated Zone X, which represents areas determined to be outside of the 500-year floodplain (FEMA, 2008).

Surface Water Quality

The Clean Water Act (CWA) is the major federal legislation governing water quality and applies to both point and non-point sources of pollution. Point sources pollution can be traced back to a single fixed discharge point such as a pipe, while non-point source pollution is generated without a fixed discharge point, such as chemicals entrained within stormwater runoff. The goals of the CWA include eliminating harmful discharges of pollution and providing water quality standards, criteria, and guidelines. Section 303(d) of the CWA requires states to identify impaired water bodies and develop total maximum daily loads (TMDLs) for the contaminant(s) of concern. The State Water Resources Control Board (SWRCB) implements the CWA in California under the delegation and oversight of the United States Environmental Protection Agency (USEPA). However, USEPA retains jurisdiction over discharges to waters on tribal trust land.

The Porter-Cologne Water Quality Control Act provides the basis for surface water and groundwater quality regulation within California. The act established the authority of the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). The act requires the State, through the SWRCB and the RWQCBs, to designate beneficial uses of surface waters and groundwaters, and specify water quality objectives designed to protect those uses. These water quality objectives are presented in the Regional Water Quality Control Plans (Basin Plans).

The Barstow site is currently under the jurisdiction of the Lahontan Regional Water Quality Control Board (LRWQCB). In accordance with Section 303(d) of the CWA, the LRWQCB submitted identified impaired water bodies in the basin to the SRWCB for the 2006 update of the 303(d) list. No water bodies associated with the Barstow site were identified as impaired on the list. In accordance with the CWA and the Porter-Cologne Water Quality Control Act, the LRWQCB has designated beneficial uses of the Mojave River in the LRWQCB Basin Plan. The beneficial uses are identified as: groundwater recharge, municipal and domestic supply, agricultural supply, cold freshwater habitat, commercial and sport fishing, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat. In addition, the LRWQCB Basin Plan identifies water quality objectives to sustain the long-term prevalence of beneficial uses of Mojave River water, as shown in **Table 3.2-1**.

TABLE 3.2-1
SURFACE WATER QUALITY OBJECTIVES FOR THE MOJAVE RIVER BASIN

Parameter	Objective (mg/L)
Total Dissolved Solids (TDS)	445
Nitrate (NO_3)	6

Notes: [1] Mojave River (at Barstow).
Source: LRWQCB, 2005.

Water quality concerns associated with stormwater in desert communities are not as well defined as in non-desert communities. The typical surface water concerns associated with stormwater are not as

directly related to the state of the watershed because the Mojave River system is dominated by groundwater rather than surface water. However, constituents such as oil and grease, asbestos, pesticides, and herbicides continue to present concerns in desert communities as in other areas. Stormwater currently generated on the undeveloped project site is not expected to contain high levels of these contaminants.

Groundwater

The site lies within the 330 square mile Middle Mojave River Valley Groundwater Basin (Middle Basin), which is part of the larger, 1400-square-mile Mojave River Valley Groundwater Basin (**Figure 3.2-1**). The Middle Basin is bounded on the north by a combination of surface and subsurface divides, the Helendale fault, and the contact between Quaternary alluvium and consolidated basement rocks of the Kramer Hills and Iron Mountain.

Water in the Mojave River Groundwater Basin is supplied by two interconnected aquifers: a Floodplain Aquifer and the Regional Aquifer (**Figure 3.2-3**). The Floodplain Aquifer consists of sand and gravel deposits, with an average depth of 200 feet. A monitoring well located on adjacent property north of the project site identified an average groundwater elevation of 230.7 feet below ground surface (2005-2008) (DWR, 2008). This aquifer is restricted to an area within approximately 1 mile of the active Mojave River channel.

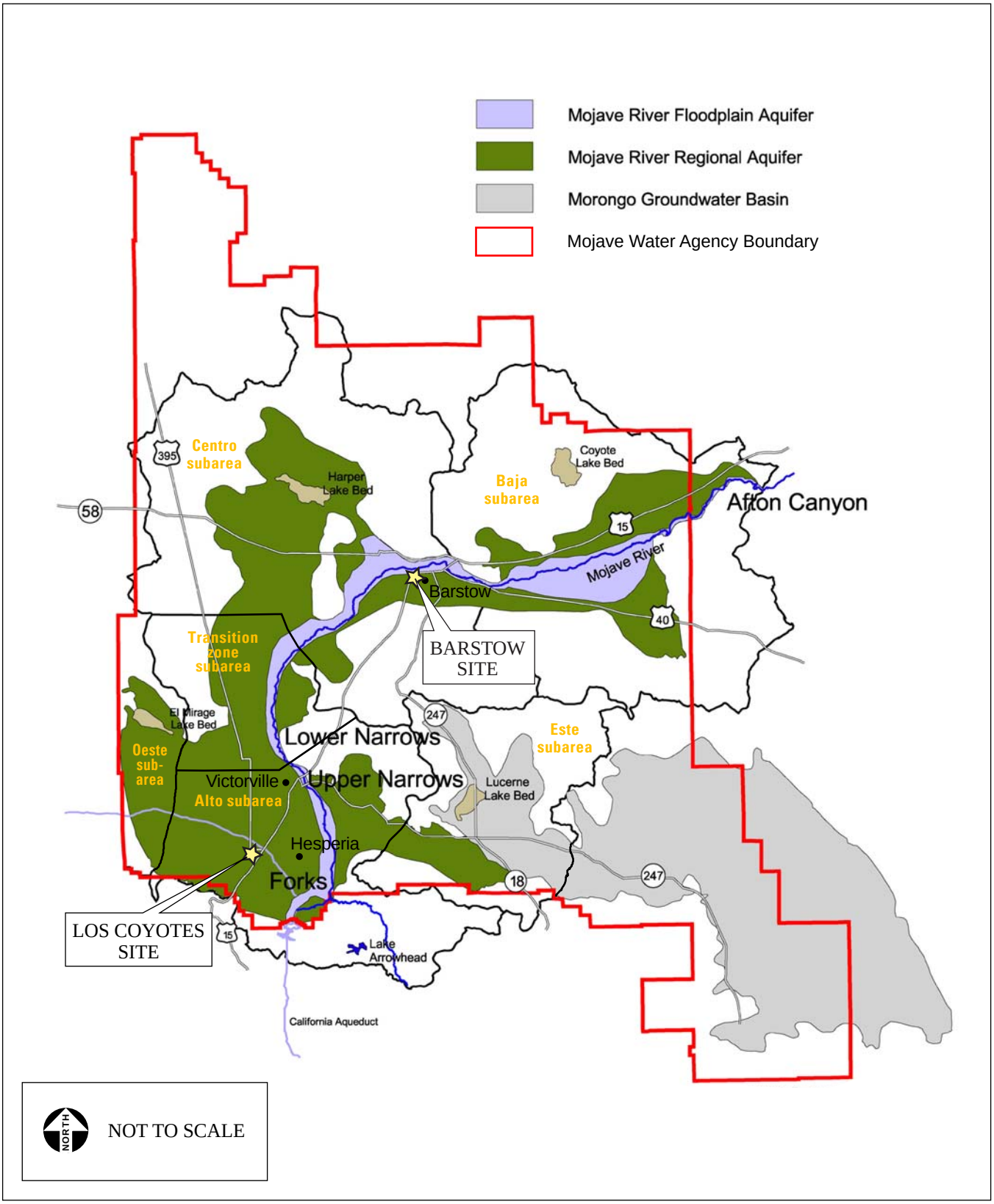
Wells in this aquifer yield from 100 to 4,000 gallons per minute (gpm), and the average well yield is approximately 480 gpm. The Regional Aquifer surrounds the Floodplain Aquifer and consists of silt, sand, and clay deposits that average approximately 300 feet deep. Well yields from the Regional Aquifer are generally less than from the Floodplain Aquifer (DWR, 2003).

Groundwater levels for wells in the Floodplain Aquifer near the Mojave River tend to vary with rainfall and runoff amounts, whereas groundwater levels in the Regional Aquifer do not show significant changes due to local rainfall. The general trend in the basin is for declining groundwater levels, particularly in the Regional Aquifer. However, increased precipitation in the 1990s resulted in increased infiltration of runoff and consequential increase in the Floodplain Aquifer groundwater level (DWR, 2003).

In the Mojave Basin natural recharge typically occurs from direct precipitation, ephemeral stream flow, infrequent surface flow of the Mojave River, and underflow of the Mojave River into the basin from the southwest. Additionally, when the Mojave River is flowing a large sporadic recharge occurs. The remainder of the total recharge comes from treated wastewater effluent, septic tank effluent, the California State Water Project (SWP), and irrigation waters that percolate into the ground (DWR, 2003).

Groundwater Supply

Residents overlying the Mojave Basin rely almost entirely on groundwater for their water supply. Reliance on groundwater has resulted in overdraft conditions since the early 1950s. Overdraft occurs when groundwater discharge (natural discharge plus pumpage) exceeds recharge, resulting in a net



SOURCE: Saracino Kirby Snow, June 2002; AES, 2011

Figure 3.2-3
Mojave River Groundwater Aquifers

reduction in groundwater stored in the aquifers. The average annual net water supply for the Mojave Basin Area is estimated to be 63,400 acre feet per annum (afa) for the period 1931-2001. In the year 2000, 34,900 acre feet (af) was used for agricultural purposes and 70,300 af was used for municipal uses for a total of 105,200 af of consumptive use in the Mojave Basin Area. This resulted in a deficit of 41,800 af for the year 2000. Over the past 50 years, records from three wells indicate that overdraft has resulted in declined groundwater levels of the Regional Aquifer from 50 to 100 feet, and reduced regional storage by nearly two million af (ESA, 2004).

In 1959 the Mojave Water Agency (MWA) was formed by an act of the legislature and given broad powers to do "any and every act necessary… so that water may be available for any present or future… uses of the lands or inhabitants of the agency" (MWA, 2009). To mitigate the effects of overdraft in the Mojave River Groundwater Basin, the MWA is using imported SWP water for artificial recharge by surface spreading. The MWA contract with the SWP allows an annual entitlement of 50,800 af (1 af = 325,872 gallons). Later, MWA purchased an additional 25,000 af of entitlement from Berrenda Mesa Water District to bring its total annual entitlement to 75,800 af (MWA, 2004).

For management purposes, the MWA split the Mojave River watershed and associated groundwater basins into five separate "subareas." The boundaries of the five subareas (Oeste, Este, Alto, Centro, and Baja) were determined based on hydrologic divisions in previous studies, evolving over time based on a combination of hydrologic, geologic, engineering, and political considerations. The project site is located in the Centro Subarea (**Figure 3.2-3)**. Limits have been set on the amount of groundwater production that can occur in each subarea without incurring an obligation to buy imported water. Subareas upstream have an annual obligation to subareas downstream based on long-term averages between 1930 and 1990. The Centro subarea is the only subarea in the Mojave River watershed that has experienced surplus in the water budget. In 2000, the Centro subarea exhibited a surplus in the water balance of 1,200 acre-feet (ESA, 2004).

Groundwater Quality

Table 3.2-2 presents groundwater quality objectives for the Mojave River at Barstow from the LRWQCB Basin Plan. Historic discharges of industrial, commercial, and domestic wastewater have degraded groundwater quality in the Barstow area.

Degradation of groundwater quality has been caused by several constituents of concern, including petroleum hydrocarbons, phenols, methylene blue active substances (surfactants), and total dissolved solids (TDS). Several domestic wells were impacted, and their use was discontinued. Salts and nitrates have leached into the local groundwater from the Lenwood landfill in the lower portion of the Middle Mojave River Groundwater Basin. Irrigation with effluent from the Barstow wastewater reclamation facility, along with naturally occurring nitrates and salts, may also be affecting the basin (DWR, 2004b).

Since approximately 1990, the LRWQCB and the City of Barstow have worked together to identify and eliminate sources of elevated TDS that enter the City's wastewater treatment plant. Through an aggressive source control program, the City has reduced the concentration of TDS in its effluent from greater than 1000 mg/L to typically less than 800 mg/L (LRWQCB, 2005).

TABLE 3.2-2
GROUNDWATER QUALITY OBJECTIVES FOR THE MOJAVE RIVER BASIN

Constituent	Water Quality Objective
Total Dissolved Solids (TDS)	445 (mg/L, maximum)
Nitrate (NO_3)	6 (mg/L, maximum)
Bacteria, Coliform	In groundwaters designated as municipal (MUN), the median concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.
Chemical Constituents	MUN groundwaters shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations. Waters designated as agriculture (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes). Groundwaters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
Radioactivity	MUN groundwaters shall not contain concentrations of radionuclides in excess of the limits specified in Title 22 of the California Code of Regulations.
Tastes and Odors	Groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For MUN groundwaters, at a minimum, concentrations shall not exceed adopted secondary maximum contaminant levels of Title 22 of the California Code of Regulations.

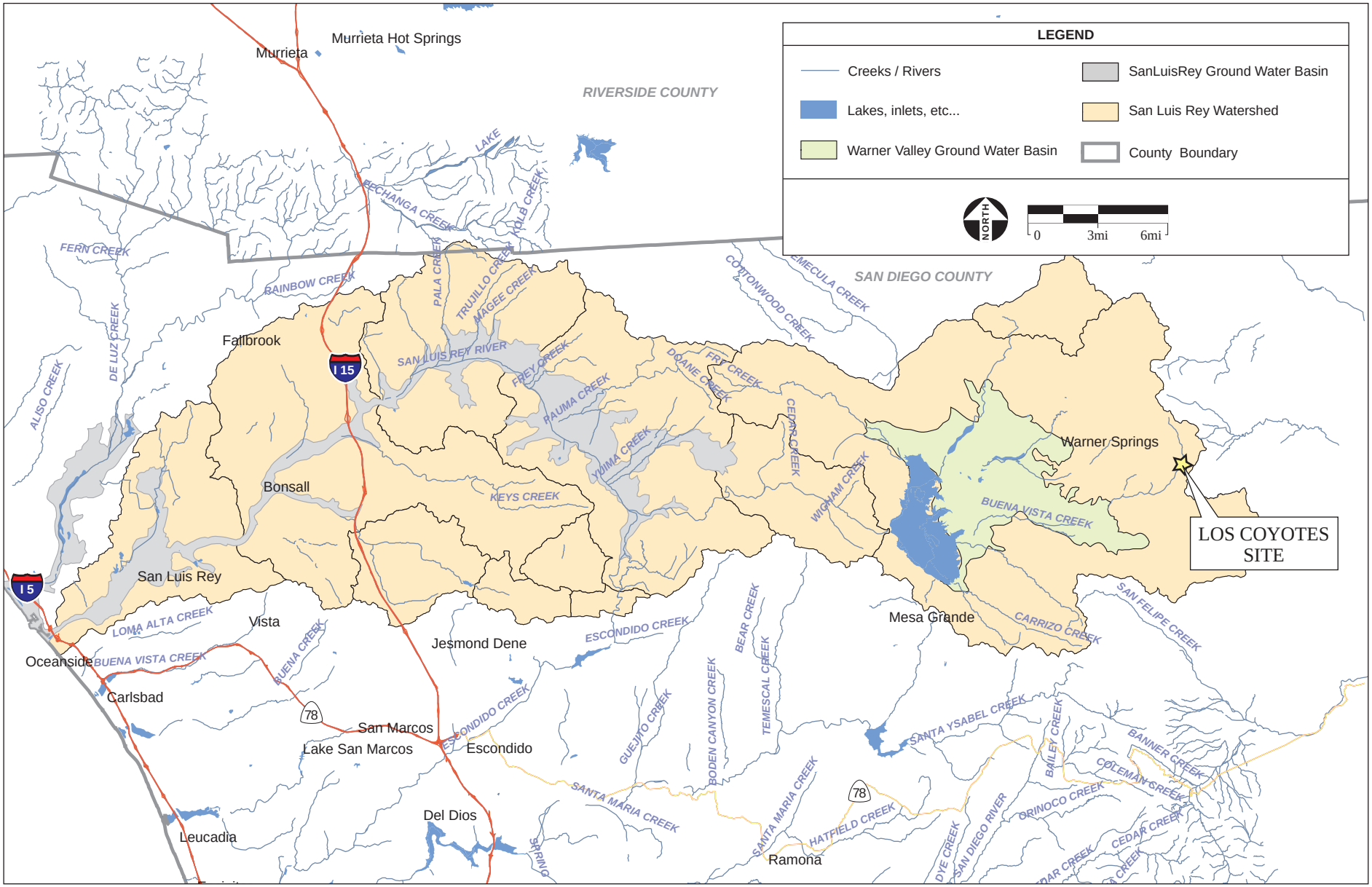
Source: LRWQCB, 2005.

3.2.2 LOS COYOTES SITE

Two-thirds of the Los Coyotes Reservation watershed lies within the San Luis Rey watershed (**Figure 3.2-4)**, including the project site. One-third of the Reservation lies within the Anza-Borrego watershed. The Reservation is located primarily within the San Diego groundwater Basin, with a small portion located in the Colorado River groundwater Basin.

The San Diego Region has thirteen principal stream systems originating in the western highlands that flow to the Pacific Ocean. Surface water impoundments capture flow from nearly all of the region's major streams. The San Luis Rey River originates at the crest of the coast range in northern San Diego County and flows approximately 16 miles to Lake Henshaw, downstream of the Los Coyotes Reservation. The lake flow eventually discharges to the Pacific Ocean at the City of Oceanside, California.

Most rainfall at the Reservation occurs from December to March. The average annual precipitation in the immediate vicinity of the Reservation is approximately 16 inches. A decrease to 10 inches annually



SOURCE: ESRI Data, 2005; AES, 2011

Figure 3.2-4
Los Coyotes Site Water Resources

occurs on the Reservation east of Hot Springs Mountain because of the rain shadow effect (precipitation decreasing on the leeward side of a mountain).

Drainage

The Reservation contains approximately 62 miles of streams, including San Ysidro Creek, Cougar Canyon Creek, Borrego Palm Canyon Creek, and their tributaries. The San Ysidro Creek and Middle Fork of Borrego Palm Canyon Creek are perennial. Flow in most streams within the Reservation is intermittent, consisting of rainfall runoff or groundwater discharge during spring flow. The Los Coyotes site is located adjacent to San Ysidro Creek, which drains to Buena Vista Creek and then to Lake Henshaw. Downstream of Lake Henshaw, the river flows through a narrow canyon along the base of Palomar Mountain until it is diverted to the Escondido Canal, which conveys water to Lake Wohlford for municipal and irrigation uses. The project site slopes southwest between three to six percent, creating a mild cross slope providing drainage from the site to San Ysidro Creek.

Floodplain

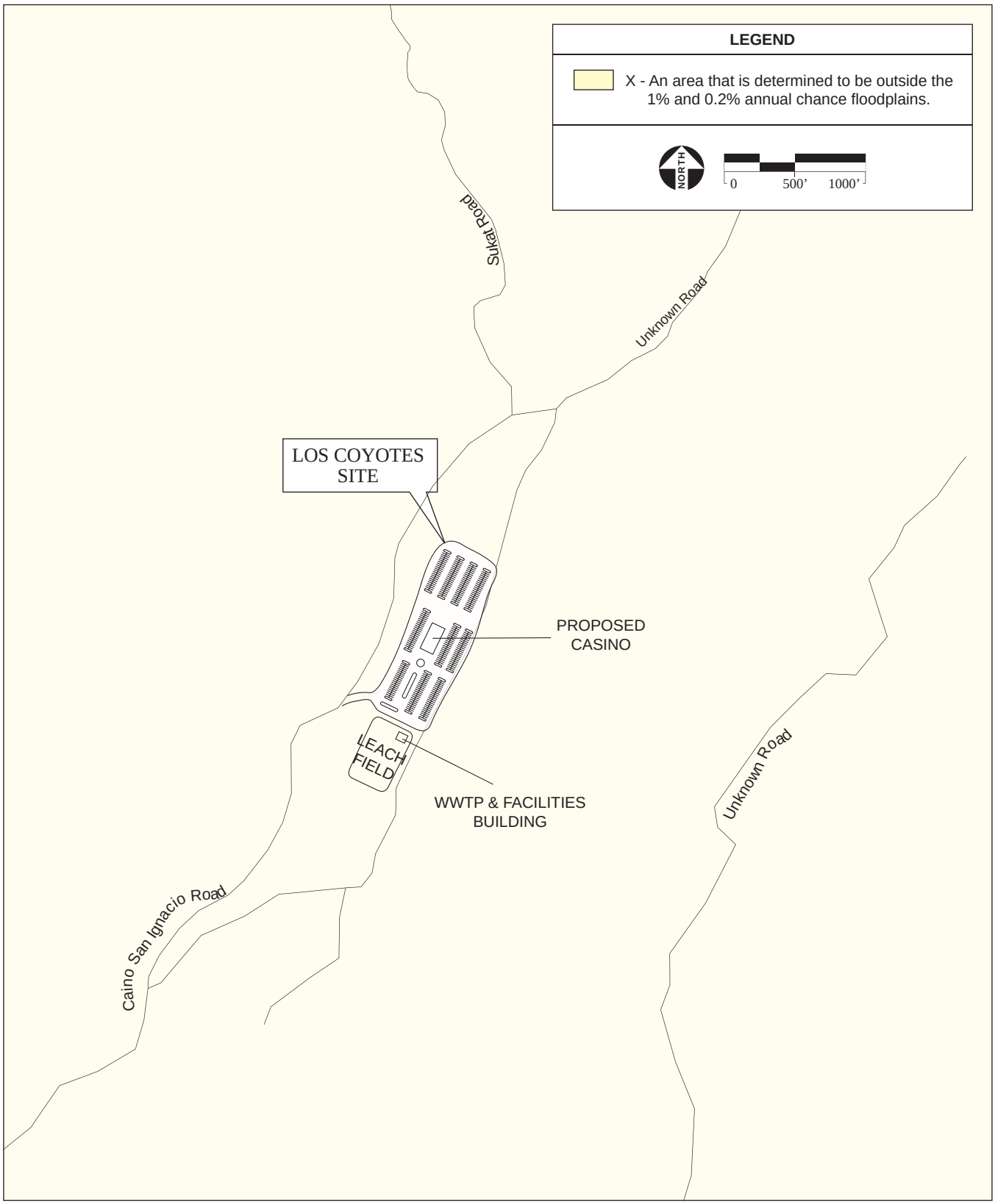
The Los Coyotes site is not located within a designated 100-year floodplain (FEMA, 2006). On the FEMA Flood Zone Map (**Figure 3.2-5**) the site is labeled Zone D, which represents areas for which flood hazards are undetermined.

Surface Water Quality

There are no water bodies within the vicinity of the project site that are listed on the 2006 state impaired water body 303(d) list. Existing or potential beneficial uses of the surface water of San Ysidro Creek within the San Luis Rey River Watershed are identified within the San Diego Regional Water Quality Control Board (SDRWQCB) Basin Plan as: municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, hydropower generation, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat. In addition, the SDRWQCB Basin Plan identifies surface water quality objectives to sustain the long-term prevalence of beneficial uses of San Diego regional water, as shown in **Table 3.2-3**. The USEPA implements CWA provisions on the Los Coyotes site, as the Bureau of Indian Affairs (BIA) holds the land in trust on behalf of the tribe.

Groundwater

The Los Coyotes site is located uphill/upriver from the Warner Valley groundwater basin (Groundwater Basin Number 9-08) (as shown in **Figure 3.2-4**). The Basin covers an area of 37.5 square miles and extends from the base of San Ysidro Creek to Buena Vista Creek and the Eastern shore of Lake Henshaw. The annual average recharge is estimated at 1.14 inches, which is equivalent to an average annual recharge rate of 2,369 af. San Diego regional drainage basins tend to be relatively small in area and have shallow groundwater.



SOURCE: ESRI Q3 Flood Data; USGS Aerial Photograph, 5/28/2002; AES, 2011

Figure 3.2-5
Los Coyotes Site Floodplain Map

TABLE 3.2-3
SURFACE WATER QUALITY OBJECTIVES FOR THE WARNER VALLEY

Parameter	Objective (mg/L)
Total Dissolved Solids (TDS)	500
Chloride (Cl)	250
Sulfate (SO_4)	250
Percent Sodium (%Na)	60
Iron (Fe)	0.3
Manganese (Mn)	0.05
Methylene Blue - Activated Substances (MBAS)	0.5
Boron (B)	0.75
Turbidity NTU	20
Color Units	20
Fluoride (F)	1
Source: SDRWQCB, 2007	

The groundwater aquifer of the Reservation consists of fractured bedrock, and alluvial materials that are generally restricted to the valleys of San Ysidro and San Ignacio Creeks. The steep topography and fractured rock aquifer of the Reservation are responsible for the occurrence of springs in the area (Springer and Anderson, 1998). The largest concentrations of springs are in the San Ysidro Creek and Borrego Palm Canyon Creek Valleys. Spring discharge is highly variable and has been documented to range from 1 to 20 gpm.

Groundwater trends have historically varied across the Warner Valley Groundwater Basin. Water levels in a well in the southeastern portion of the basin declined about 3 feet from 1912 through 1967; however, in the central portion of the basin, groundwater levels in wells declined 30 to 138 feet during the 1950s and 1960s (DWR, 2004b).

Groundwater Supply

The small alluvial valleys of San Ysidro Creek and Borrego Palm Canyon Creek are the only areas of the Reservation where significant quantities of water may be in storage. Nearly all of the local groundwater resources in the region have been intensively developed for municipal and agricultural supply purposes. Existing wells in the vicinity of the Reservation are associated with fractured igneous rock. Several private wells are used for domestic water supply, and a community well has been installed. Wells drilled into fractured igneous rock generally yield less than 5 gpm, while yields of 30 gpm may occur from wells drilled into several feet of saturated alluvium overlying fractured rock. The largest reported well yields in the vicinity of the Reservation are 100 to 500 gpm, and are drilled into alluvial material more than 50 feet thick (Springer and Anderson, 1998).

The Los Coyotes Reservation is supplied with water from several spring-fed sources and hand-dug wells that supply a community water system serving Tribal residents and the Los Coyotes tribal offices (Springer and Anderson, 1998). The community spring lies in the San Ysidro Valley and has provided a

water source for the community system for several years. The springs are also used as private water sources (Marc Anderson, Inc., 2004). The most efficient well on the Reservation is a flowing artesian well at San Ignacio, which has been determined to have the potential for the largest well yields, with a safe yield of 62 gpm and a maximum yield capacity of 500 gpm (Marc Anderson, Inc., 2004; Ballog, 1980).

Groundwater Quality

Groundwater in the Warner Valley Groundwater Basin is generally rated suitable for irrigation and domestic uses except near Warner Hot Springs, where it is rated inferior for irrigation use because of sodium content and for domestic use because of high fluoride concentrations. The groundwater is dominantly sodium bicarbonate in character, though some calcium bicarbonate water is found in the southern part of the basin. Some sulfate- and chloride-rich water is found near Warner Hot Springs in the eastern part of the basin.

Groundwater quality objectives for Warner Valley groundwater basin of the San Luis Rey Hydrological Unit have been determined by the SDRWQCB, as shown in **Table 3.2-4**.

TABLE 3.2-4
GROUNDWATER QUALITY OBJECTIVES FOR THE WARNER VALLEY

Parameter	Objective (mg/L)	Parameter	Objective (mg/L)
Total Dissolved Solids (TDS)	500	Manganese (Mn)	0.05
Chloride (Cl)	250	Methylene Blue-Activated Substances (Surfactants)	0.5
Sulfate (SO_4)	250	Boron (B)	0.75
Percent Sodium (%Na)	60	Turbidity NTU	5
Nitrate (NO_3)	5	Color Units	15
Iron (Fe)	0.3	Fluoride (F)	1
Source: SDRWQCB, 2007			

3.3 AIR QUALITY

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of air quality contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.3.1 REGULATORY CONTEXT

The Federal Clean Air Act (CAA) was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. The United States Environmental Protection Agency (USEPA) is the federal agency responsible for identifying air pollutants of concern, establishing air quality standards, and approving and overseeing state air programs which implement the CAA in order to achieve national and state air quality goals.

Criteria Air Pollutants (CAPs)

Criteria Air Pollutants (CAPs) are common pollutants that have been identified by USEPA as being detrimental to human health. CAPs are used as indicators of regional air quality. The USEPA has designated six CAPs: ozone (O_3), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb).

The following CAPs (ozone and particulate matter) are of special concern in the Mojave Desert Air Basin. Only ozone is of special concern in the San Diego Air Basin.

Ozone

Photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_X) resulting from the incomplete combustion of fossil fuels are the largest source of ground-level O_3. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, O_3 is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. O_3 is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

Particulate Matter

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Particles smaller than 10 micrometers (µm) in diameter (PM_{10}) but greater than 2.5 µm pose the greatest problems, because they can be inhaled deep into the lungs. Exposure to such particles can affect respiratory system function.

National Ambient Air Quality Standards (NAAQS)

The established maximum concentrations for the six CAPs are known as the National Ambient Air Quality Standards (NAAQS). Concentrations above these time-averaged limits are anticipated to cause adverse health effects to sensitive receptors. The CAA established primary and secondary NAAQS. Primary standards set limits to protect public health, while secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. For some of the CAPs, more than one averaging time standard has been identified in order to address the typical exposures found in the environment. The EPA has established violation criteria for each CAP. For example, in order to constitute a violation, the NAAQS for O_3 must be exceeded on more than three days in three consecutive years. On the other hand, if the CO NAAQS is exceeded on more than one day in any given year, a violation has occurred. Refer to **Table 3.3-1** for the violation criteria for the various averaging times for each CAP.

TABLE 3.3-1

NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Symbol	Average Time	Standard (ppm)	Standard (ug/m^3)	Violation Criteria
Ozone	O_3	8 hours	0.075	N/A	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours 1 hour	9 35	N/A N/A	If exceeded on more than 1 day per year If exceeded on more than 1 day per year
Nitrogen dioxide	NO_X	Annual average 1 hour	0.053 N/A	100 N/A	If exceeded N/A
Sulfur dioxide	SO_X	Annual average 24 hours 1 hour	0.03 0.14 0.75	80 365	If exceeded If exceeded on more than 1 day per year N/A
Inhalable particulate matter	PM_{10}	Annual geometric mean Annual arithmetic mean 24 hours	N/A N/A N/A	N/A 50 150	N/A If exceeded If exceeded on more than 1 day per year
Fine particulate matter	$PM_{2.5}$	Annual arithmetic mean 24 hours	N/A N/A	15 35	If exceeded If exceeded on more than 1 day per year
Lead particles	Pb	Calendar quarter 30 days	N/A N/A	1.5 60	If exceeded on more than 1 day per year N/A

Notes: All standards are based on measurements at 25°C and 1 atmosphere pressure. National standards shown are the primary (health effects) standards. N/A = not applicable; ppm = parts per million; ug/m3 = micrograms per cubic meter.

Source: EPA, 2010

The USEPA identifies areas throughout the United States that meet the NAAQS, these areas are labeled either attainment or unclassifiable. Areas that do not meet the NAAQS are labeled either “nonattainment” or “maintenance.”

The USEPA further classifies nonattainment areas according to the level of pollution in each. There are five classes of nonattainment areas: maintenance (recently became compliant with the NAAQS), marginal (relatively easy to obtain levels below the NAAQS), serious, severe, and extreme (will be difficult to reach levels below NAAQS). The CAA uses the classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. Attainment and nonattainment areas are identified through monitoring. Unclassifiable areas are those for which air monitoring has not been conducted but are assumed to be in attainment for the NAAQS. States, municipal statistical areas, air basins, and counties that contain areas of non-attainment are required to develop a SIP, which outlines policies and procedures designed to bring the state into compliance with the NAAQS.

State Implementation Plans (SIPs)

Nonattainment areas must take steps towards attainment by a specific timeline. These steps are consolidated within the SIP as mandated by the CAA. The SIP sets forth the state's strategy for achieving federal air quality standards. The SIP is not a single document, but a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. All of the items that are included in the SIP are published in the Code of Federal Regulations.

Federal General Conformity

The General Conformity Rule of the federal CAA (42 USC 7401), implements Section 176(c) of the Act, and establishes minimum thresholds for volatile organic compounds (VOCs) and NO_X (ozone precursors), particulate matter (10 microns) (PM_{10}), and other regulated constituents for non-attainment and maintenance areas.

Title 40 Part 93 of the Code of Federal Regulations (CFR) was promulgated in order to determine conformity of Federal actions to the applicable SIP. A lead agency must make a determination that a federal action conforms to the applicable implementation plan before the action is taken. A conformity determination is required for each pollutant where a total of direct and indirect emissions in a nonattainment or maintenance area caused by the federal action are greater than *de minimus* thresholds as listed in CFR Section 93.153(b).

The thresholds established in the general conformity rule provide simple and direct guidance for federal agencies to ensure that they comply with an approved SIP. The general conformity rule includes a procedure for determining whether the rule is applicable to the actions of a federal agency. The procedure has two phases:

1) The Conformity Review process, which entails a review of each analyzed alternative to assess whether a full conformity determination is necessary, and
2) The Conformity Determination process, which demonstrates how an action would conform to the applicable SIP.

The first step compares emissions estimates for the project to the appropriate general conformity *de minimus* threshold based on nonattainment type. If the emission estimates from step one are below the thresholds, then a general conformity determination is not necessary and step two is not required.

Other Air Pollutants

Greenhouse Gases

Federal

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. On February 10, 2010 the Council on Environmental Quality (CEQ) provided for public comment its Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (NEPA Guidance). The draft NEPA Guidance provides Federal agencies with guidance on how to analyze the environmental impacts of greenhouse gas (GHG) emissions and climate change when evaluating the environmental impacts of a proposed action under NEPA. The draft NEPA Guidance provides practical tools for agency reporting, including a presumptive threshold of 25,000 metric tons (MT) of direct carbon dioxide equivalent emissions from the proposed action to trigger a quantitative analysis, and instructs agencies how to assess the effects of climate change on the proposed action and its design. The draft NEPA Guidance recommends quantification of GHG emissions, assessment of the significance of any impact on climate change, and, identification of mitigation or alternatives that would reduce GHG emissions. It should be noted that the draft NEPA Guidance has not yet been finalized.

The following are the most recent regulatory actions taken by the USEPA:

- On July 23, 2009, USEPA published a final "rule which proposes to establish the criteria for including sources or sites in a Registry of Recoverable Waste Energy Sources (Registry)," as required by the Energy Independence and Security Act of 2007. Waste energy can be used to produce clean electricity. The clean electricity produced by waste energy would reduce the need for non-renewable forms of electricity production, thus reducing greenhouse gas (GHG) emissions.

- On September 15, 2009, USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. USEPA proposed the first national GHG emissions standards under the Clean Air Act, and NHTSA proposed an increase in the Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act.

- In response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. Signed by the Administrator on September 22, 2009, the rule requires that suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines outside of the light duty sector, and facilities that emit 25,000 metric tons or more of GHGs per year to submit annual reports to USEPA. The rule

is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.

- On September 30, 2009, USEPA proposed new thresholds for greenhouse gas emissions (GHG) that define when Clean Air Act permits under the New Source Review and title V operating permits programs would be required.

- In February, 2010 The CEQ Chair released a memorandum, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. The memorandum provides guidance on how project-related GHG emission should be analyzed in NEPA documents. The Draft Guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. The guidance notes that the 25,000 metric tons is not a threshold for evaluating climate change on the project level.

State

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of state agencies implementing a variety of state laws and policies. A brief summary of these laws and policies is provided below.

Assembly Bill 1493 (AB 1493)

Signed by the Governor in 2002, AB 1493 requires that the CARB adopt regulations requiring a reduction in GHG emissions emitted by cars in the state. AB 1493 is intended to apply to 2009 and later vehicles. On June 30, 2009, the USEPA granted a Clean Air Act waiver, which the state needs in order to implement AB 1493.

Executive Order S-3-05 (EO S-3-05)

EO S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010,
- Reduce GHG emissions to 1990 levels by 2020, and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" (CAT) headed by the California Environmental Protection Agency and including several other state agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also tasked with creating a strategy to meet the emission reduction target required by the EO. In April 2006 the CAT published an initial report that accomplished these two tasks.

Assembly Bill 32 (AB 32)

Signed by the Governor on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05, specifically the requirement to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 tasks CARB with monitoring state sources of GHGs and designing emission reduction measures to comply with the law's emission reduction requirements. However, AB 32 also continues the CAT's efforts to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall state climate policy.

In order to accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that it estimated could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007a). In order to assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated their 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In its October 2007 report, CARB cited the CAT strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 requires that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. Consequently, in early December 2008 CARB released its scoping plan to the public, which was approved by CARB on December 12, 2008.

The scoping plan calls for an achievable reduction in California's carbon footprint. Reduction of GHG emissions to 1990 levels are proposed, which equates to cutting approximately 30 percent of emissions estimated for 2020, or about 15 percent from today's levels. The scoping plan relies on existing technologies and improving energy efficiency to achieve the 30 percent reduction in GHG emission levels by 2020. The scoping plan provides the following key recommendation to reduce GHG emissions:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a state-wide renewable energy mix of 33 percent;
- Developing a state-wide cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation.

Executive Order S-01-07 (EO S-01-07)

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in their October 2007 report.

Senate Bill 97 (SB 97)

Signed by the governor on August 24, 2007, SB 97 requires that the Governor's Office of Planning and Research (OPR) prepare California Environmental Quality Act (CEQA) guidelines for evaluating the effects of GHG emissions and for mitigating such effects. The Natural Resources Agency adopted these guidelines in December 2009.

The adopted guidelines provide the following direction for consideration of climate change impacts in a CEQA document:

- The determination of significance of GHG emissions calls for a careful judgment by the lead agency.
- The lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a proposed project.
- A model or methodology shall be used to quantify GHG emissions resulting from a CEQA project.
- Significance may rely on qualitative analysis or performance based standards.
- The lead agency may adopt thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.
- The CEQA document shall discuss regional and/or local GHG reduction plans.
- A CEQA document shall analyze GHG emissions if they are cumulatively considerable.
- A description of the effects of climate change on the environment shall be included in CEQA documents.
- A CEQA document shall contain mitigation measures, which feasibly reduce GHG emissions.
- GHG analysis in a CEQA document may be Tiered or Streamlined.

It should be noted that this EIS/TEIR is not technically a CEQA document, but rather a "CEQA-like" document that has been prepared in accordance with anticipated State gaming compact requirements.

Diesel Particulate Matter

Diesel particulate matter (DPM) is defined as a Hazardous Air Pollutant (HAP). HAPs are substances that are known or suspected to be emitted and have potential adverse health effects. Currently, there are 188 HAPs listed by USEPA. According to USEPA, the estimated health risk from HAPs can be primarily attributed to relatively few compounds, such as DPM. DPM differs from many other HAPs in that it is not a single substance, but rather a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter, which includes carbon particles or "soot."

3.3.2 BARSTOW SITE

Regional Meteorology

The Barstow site is located in a desert climate. During the summer, a Pacific subtropical high cell that sits off the coast generally influences the Mojave Desert Air Basin (MDAB), inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south.

The average annual rainfall at Barstow is approximately 4.4 inches, with 66 percent of the precipitation occurring from November through April. Summer temperatures average 102 ºF in July and winter minimum temperatures average 31 ºF in December (WRCC, 2005).

Prevailing winds in the Barstow area are out of the west and southwest, a pattern caused by the proximity of the Sierra Nevada Mountains to the north, and air masses that are pushed onshore in Southern California by differential heating and channeled through the MDAB. The MDAB is separated from the Southern California Coastal and Central California Valley regions by mountains (highest elevation approximately 10,000 feet), the passes of which form the main channels for these air masses.

Regional Air Quality

The Barstow site is located in the MDAB. The Mojave Desert Air Quality Management District (MDAQMD) has jurisdiction governing air quality in the MDAB under the delegation and oversight of CARB and the EPA; however, once the project site is taken into trust, the EPA would have sole jurisdiction governing air quality on tribal land. MDAQMD has jurisdiction over the desert portion of San Bernardino County and the far eastern end of Riverside County in accordance with the California Clean Air Act (CCAA). MDAQMD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. MDAQMD has adopted attainment plans for a variety of nonattainment pollutants, including the *Mojave Desert Planning Area Federal Particulate Matter Attainment Plan for PM_{10}* and the *Triennial Revision to the 1991 Air Quality Attainment Plan* for ozone. Although it does not have jurisdiction on tribal lands, MDAQMD is the regional agency responsible for protecting public health from air pollution in the MDAB.

NAAQS Designations

As shown in **Table 3.3-2**, the MDAB has been designated nonattainment under the federal 8-hour ozone standard with an attainment deadline of 2021. Because the MDAB is designated severe-17 nonattainment for O_3, the *de minimus* threshold for O_3 precursors (ROG and NO_X) is 25 tons per year. The MDAB has also been designated moderate nonattainment for PM_{10}, and a *de minimus* threshold of 100 tons per year has been established. The MDAB meets the federal standards or is unclassifiable for all other pollutants.

TABLE 3.3-2
MOJAVE DESERT AQMD NAAQS ATTAINMENT STATUS

Pollutant	Federal Attainment Status
Ozone (8-hour)	**Nonattainment, Severe-17**
Particulate Matter (PM_{10})	**Nonattainment, moderate**
Particulate Matter ($PM_{2.5}$)	Unclassifiable/Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Unclassifiable/Attainment
Sulfur Dioxide	Unclassifiable/Attainment
Source: MDACMD, 2009.	

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Surrounding land uses consist of open desert and commercial shopping. The nearest hospital is over three miles from the project site. One school (Lenwood School) is located approximately two miles away. Two miles north of the Barstow site is a recreation corridor, and adjacent to the site is the 33,500-acre Stoddard Valley Off-Highway Vehicle area.

3.3.3 LOS COYOTES SITE

Regional Meteorology

The Los Coyotes site is in the northwest portion of San Diego County, which has a Mediterranean-type climate characterized by hot summers, mild winters, and an almost complete absence of rain for three to four months during the summer. Light to moderate rainfall generally occurs during the winter. A dominating factor in the weather of southern California is the semi-permanent, high-pressure area in the eastern Pacific. This pressure center migrates north in summer, holding storm systems well to the north of the area. Consequently, southern California receives little or no precipitation during the summer. In winter, the Pacific High retreats southward, allowing storm centers to move into and across southern California. These storms bring widespread, moderate precipitation to southern California. The average annual rainfall at the Warner Springs weather station (approximately 5 miles west-northwest of the Los Coyotes site) is 12.85 inches, with 71 percent of the precipitation occurring from November through April. Summer temperatures average 95 ºF in July and winter minimum temperatures average 24º F in January (WRCC, 2008).

The Los Coyotes site is surrounded by low mountains interspersed with long valleys. Many of the lower mountains, which dot the vast terrain, rise from 1,000 to 4,000 feet. The San Diego region is bordered on the south by Mexico's high desserts, on the west by the Pacific Ocean, and on the east by the Salton Sea. The prevailing wind directions in the area are west-southwest to west. Average annual wind speed is six miles per hour (mph). Calm wind conditions occur approximately 21 percent of the time. Strong winds and gales are infrequent in the region, with wind speeds over 30 miles per hour occurring only approximately once each year on the average.

Low-level temperature inversions (below 1,500 feet) occur frequently over southern California. Southern California's inversion layer is famous for creating cloudless summer days and for trapping pollutants to form smog. Pollutants in San Diego County stop at the lower mountain slopes, because the inversion layer that traps these pollutants against the slopes hovers around 2,000 feet. Therefore, high mountain locations above 4,000 feet, such as the Los Coyotes site, are relatively free of smog (SDCAPCD, 2005).

Regional Air Quality

The Los Coyotes site is located in the San Diego Air Basin (SDAB). The San Diego Air Basin is comprised of a single air district, the San Diego County Air Pollution Control District (SDCAPCD), which consists of San Diego County. SDCAPCD is responsible for regulating air quality on a local level in San Diego County. SDCAPCD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. SDCAPCD has adopted attainment plans for a variety of nonattainment pollutants, including the *2004 Triennial Revision of the Regional Air Quality Strategy for San Diego County* and the *Ozone Redesignation Request and Maintenance Plan for San Diego County*. Although it does not have jurisdiction on tribal lands, SDCAPCD is the regional agency responsible for protecting public health from air pollution in the SDAB.

NAAQS Designations

As shown in **Table 3.3-3**, San Diego County has been designated "basic" nonattainment under the federal 8-hour ozone standard with an attainment deadline of June 2009. However, the EPA has yet to make a change to the ozone attainment status in San Diego County. The nonattainment area is valid for the entire San Diego County with the exception of the San Diego Tribes sub-areas. The Los Coyotes site is not located in one of the San Diego Tribes sub-areas. San Diego County is designated nonattainment for O_3, with an established *de minmus* threshold for O_3 precursors (VOC and NO_X) of 100 tons per year. San Diego County meets the federal standards or is unclassifiable for all other pollutants.

Sensitive Receptors

Surrounding land uses consist mainly of grazing land. No hospitals are located within three miles of the site and the nearest school (Warner Union School) is located approximately six miles away. The nearest tribal residence is more than two miles from the project site.

TABLE 3.3-3
SAN DIEGO COUNTY NAAQS ATTAINMENT STATUS

Pollutant	Federal Attainment Status
Ozone (8-hour)	Nonattainment
Respirable Particulate Matter (PM_{10})	Unclassifiable
Fine Particulate Matter ($PM_{2.5}$)	Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Attainment
Sulfur Dioxide	Attainment
Source: SDCAPCD, 2010	

3.4 BIOLOGICAL RESOURCES

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of biological resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.4.1 BARSTOW SITE

Methodology

For the purpose of this Environmental Impact Statement/Tribal Environmental Impact Report (EIS/TEIR), biological resources are considered to include all plants, vegetation communities and other wildlife habitats, wildlife, and waters of the U.S. Vegetation communities within the project site were identified during literature reviews and further classified (i.e., ground-truthed) during the field surveys. A review of the California Natural Diversity Data Base (CNDDB) was conducted and species lists were obtained from United States Fish and Wildlife Service (USFWS) and the California Native Plant Society (CNPS) to identify special-status species or other sensitive biological communities potentially present within the site. The CNDDB and CNPS database queries were conducted for the "Barstow, CA" 7.5-minute quadrangle (quad) and the surrounding eight quads (i.e., West Ord Mountain, Stoddard Well, Turtle Valley, Nebo, Daggett, Barstow, Hodge, and Hinkley). Field assessments of the Barstow site (project site) and vicinity were conducted on May 3 and 4, 2006, and again on March 29 and 30, 2012. The biological surveys were conducted by walking transects 40 to 60 feet apart in order to view and evaluate all areas within the project site. All visible fauna and flora were noted and identified to the lowest possible taxonomic level, which is required for accurate identification and reporting. Habitat types present within the project site were characterized and evaluated for their potential to support regionally occurring special-status species. The project site was also assessed for the presence of potentially jurisdictional waters of the U.S. and other biologically sensitive features.

A Biological Assessment has been prepared to evaluate the potential for the Mojave desert tortoise (*Gopherus agassizii*) to occur within the Barstow site (**Appendix T** of the Final EIS/TEIR). A detailed description of methodology and consultation with the USFWS regarding the Mojave desert tortoise is included within the Biological Assessment and summarized herein.

Biological Setting

The 23.1-acre project site is located at the southwestern end of the City of Barstow, San Bernardino County, California. The project site is within the western Mojave Desert and is located within the Desert Floristic Provence and the Mojave Desert Geographic Subdivision of California (Hickman, 1993). The dominant vegetation type within this region of California is characteristic of its many alkaline basins and includes Mojave creosote-bush scrub and saltbush scrub. Elevations within the project site range from approximately 728 to 736 meters above mean sea level (amsl) or 2,390 feet to 2,415 feet.

Mojave creosote bush scrub is dominated by shrubs such as creosote bush (*Larrea tridentata*), senna (*Senna armata*), ephedra (*Ephedra nevadensis*), burrobrush (*Hymenoclea salsola*), desert almond (*Prunus*

sp.), and white bur-sage (*Ambrosia dumosa*). These shrubs are generally two-to-ten feet tall and widely spaced. Mojave creosote bush scrub generally occurs on well-drained soils on slopes, fans, and in valleys (Holland, 1986). Desert saltbush scrub is generally dominated by gray, microphyllous shrubs that are generally one-to-four feet tall and widely spaced. Typical stands of desert saltbush scrub are strongly dominated by a single species of saltbush (*Atriplex* sp.). Other species known to occur within this vegetation type include honey mesquite (*Prosopis glandulosa*), bush seepweed (*Suaeda moquinii*), hop-sage (*Grayia spinosa*), and kochia (*Kochia californica*). Desert saltbush scrub normally occurs on fine-textured, poorly drained soils with high alkalinity and/or salinity (Holland, 1986).

Habitat Types

Mojave Creosote Bush Scrub

According to the Holland vegetation classification system, the dominant habitat type within the project site is #34100 Mojave creosote bush scrub (Holland, 1986). Approximately 16.51 acres of Mojave creosote bush scrub habitat was mapped within the project site (**Figure 3.4-1**). **Figure 3.4-2** (**Photos 1** and **2**) shows photographs of the Mojave creosote bush scrub habitat type. The dominant shrub is creosote bush (*Larrea tridentata*), which occupies approximately ten percent groundcover. The subdominant shrub is saltbush (*Atriplex polycarpa*), which occupies approximately two percent groundcover. A scattering of white bur-sage (*Ambrosia dumosa*) also occurs at the project site. The dominant herbaceous plant species is Mediterranean grass (*Schismus barbatus*), which occupies approximately 50 percent groundcover. Creosote bush individuals onsite average approximately five feet tall and saltbush individuals average approximately two feet tall. The total shrub cover is approximately 12 percent and the total herbaceous vegetation cover is approximately 60 percent.

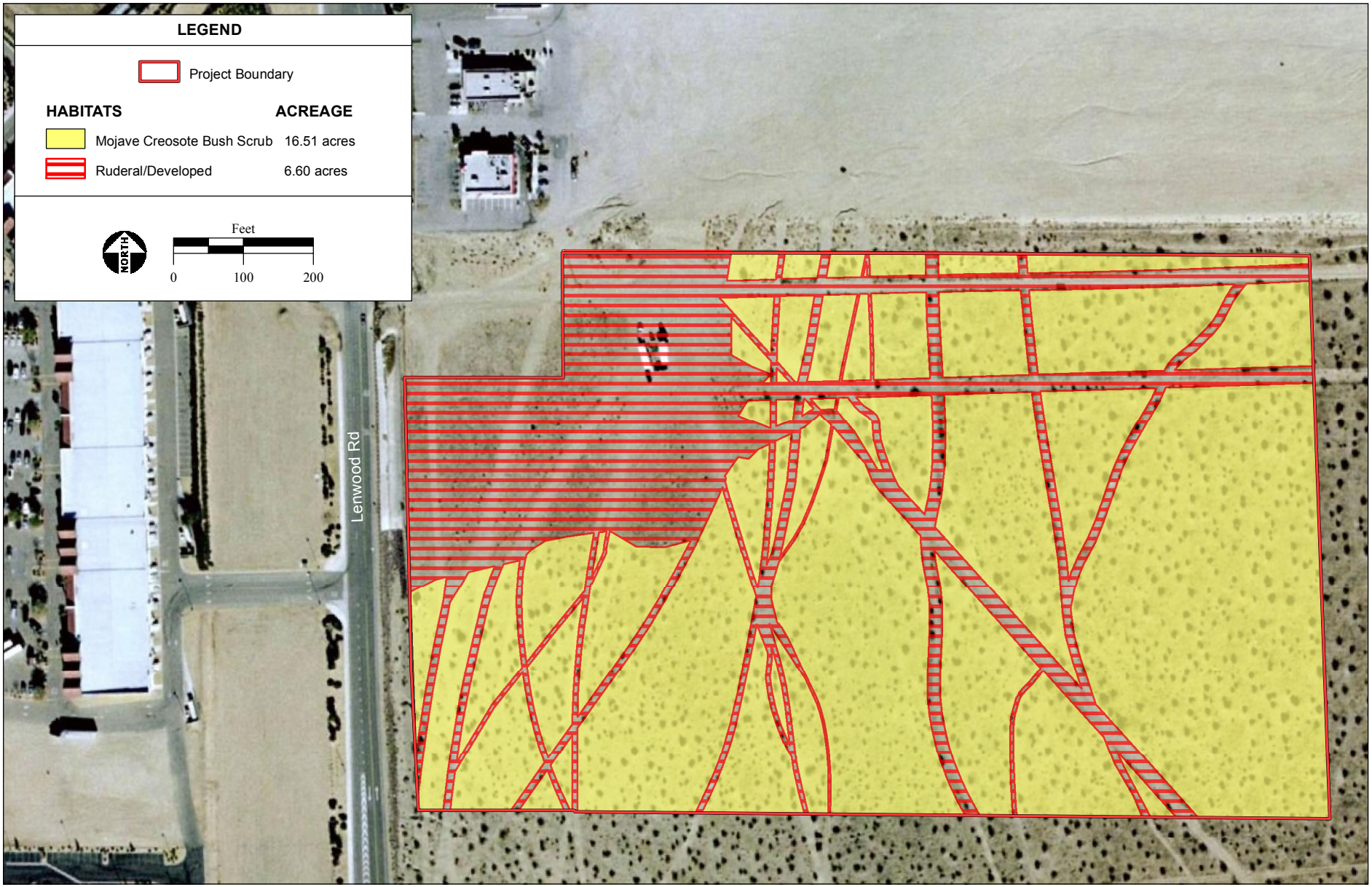
Ruderal/Developed

Approximately 6.60 acres of ruderal/developed habitat exists within the project site (**Figure 3.4-2**, **Photo 3**). Ruderal/developed habitat includes an area where a house and associated infrastructure once existed and had been removed prior to the May 3 and 4, 2006 biological surveys, as well as several dirt roads that crisscross the project site that are used to access the adjacent Stoddard Valley Off-Highway Vehicle (OHV) area. Several small horticultural trees, including pine (*Pinus* sp.) and cottonwood (*Populus* sp.), and a small amount of herbaceous vegetation remain within the project site.

Waters of the U.S.

The term “waters of the U.S.” is defined in 33 CFR Part 328 as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;



SOURCE: GoogleEarth/DigitalGlobe 2006; AES, 2011

Figure 3.4-1

Habitat Map – Barstow Site

PHOTO 1: Mojave creosote bush scrub on the Barstow site. View from east to west.

PHOTO 2: Mojave creosote bush scrub on the Barstow site. View from north to southeast.

PHOTO 3: View of Ruderal/Developed habitat. A house had been built and later torn down in this area.

SOURCE: AES, 2011

Figure 3.4-2
Site Photographs – Barstow Site

- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes; or natural ponds, the use or degradation of which could affect interstate or foreign commerce including any such waters:
  i. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
  ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  iii. Which are used or could be used for industrial purpose by industries in interstate commerce.

"Wetlands" are defined as:

- 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 (38 CFR Part 328).

An assessment of potentially jurisdictional waters of the U.S. was conducted by AES during the 2006 field surveys. No potentially jurisdictional wetlands or other waters of the U.S. were observed within the project site during this assessment.

Observed Wildlife

The Mojave creosote bush scrub habitat within the project site provides habitat for a variety of wildlife species. Bird species observed during the field surveys include: mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), loggerhead shrike (*Lanius ludovicianus*), barn swallow (*Hirundo rustica*), Gambel's quail (*Callipepla gambelii*), and western tanager (*Piranga ludoviciana*). Mammal species observed include: coyote (*Canis latrans*), antelope ground squirrel (*Ammospermophilus leucurus*), and black-tailed jackrabbit (*Lepus californicus*). One reptile species was observed; western whiptail (*Cnemidophorus tigris*).

Special-Status Species

The USFWS, CNDDB, and CNPS lists of regionally occurring special-status species are included for reference purposes as **Appendix F** of the Draft EIS/TEIR and **Appendix S** of this Final EIS/TEIR. A list of regionally occurring special-status species reported in the scientific database queries was compiled for the project site and this list is also presented in **Appendix F** of the Draft EIS/TEIR and **Appendix S** of this Final EIS/TEIR. An analysis to determine which of these special-status species have the potential to occur within the project site was conducted. The habitat requirements for each regionally occurring special-status species were assessed and compared to the type and quality of habitats observed on-site during the field surveys. The analysis was also based upon a review of pertinent literature, aerial photographs, site topographic maps, informal consultation with USFWS and local experts, and mapped CNDDB occurrences of special-status species within a five-mile radius of the project site. Several regionally occurring special-status species were eliminated due to lack of suitable habitat within the project site, elevation range, lack of suitable substrate/soils, and/or distribution. Species determined to have no potential to occur on-site are not discussed further.

All occurrences of special-status species reported within a five-mile radius of the project site were plotted on a map, which is presented as **Figure 3.4-3**. The project site contains suitable habitat for seven special-status species; three plants, one reptile, two birds, and one mammal. **Table 3.4-1** contains those state and CNPS-listed species with suitable habitat on-site that were reported by CNDDB within five miles of the project site. **Table 3.4-2** consists of the federally listed species that have suitable habitat on-site or are reported to occur within the project site and immediate vicinity.

Special-status species that are formally listed by the state and/or recognized by state agencies, CNPS, or other local jurisdictions because of their rarity or vulnerability to habitat loss or population decline generally receive no specific protection on tribal lands taken into trust by the federal government. Federally recognized Tribes are regarded as independent and sovereign nations. While Tribes have no formal obligation to protect or preserve special-status species other than those that are federally listed, because the Barstow site is not currently federal trust land, potential impacts to state listed species are discussed in **Section 4.4** and mitigation to reduce potential effects to state listed species is recommended in **Section 5.0**. For the purposes of this EIS/TEIR, federally listed species include those plant and animal species that are listed as endangered or threatened under the Federal Endangered Species Act (FESA), or formally proposed for listing.

State and CNPS Listed Species

Plant Species

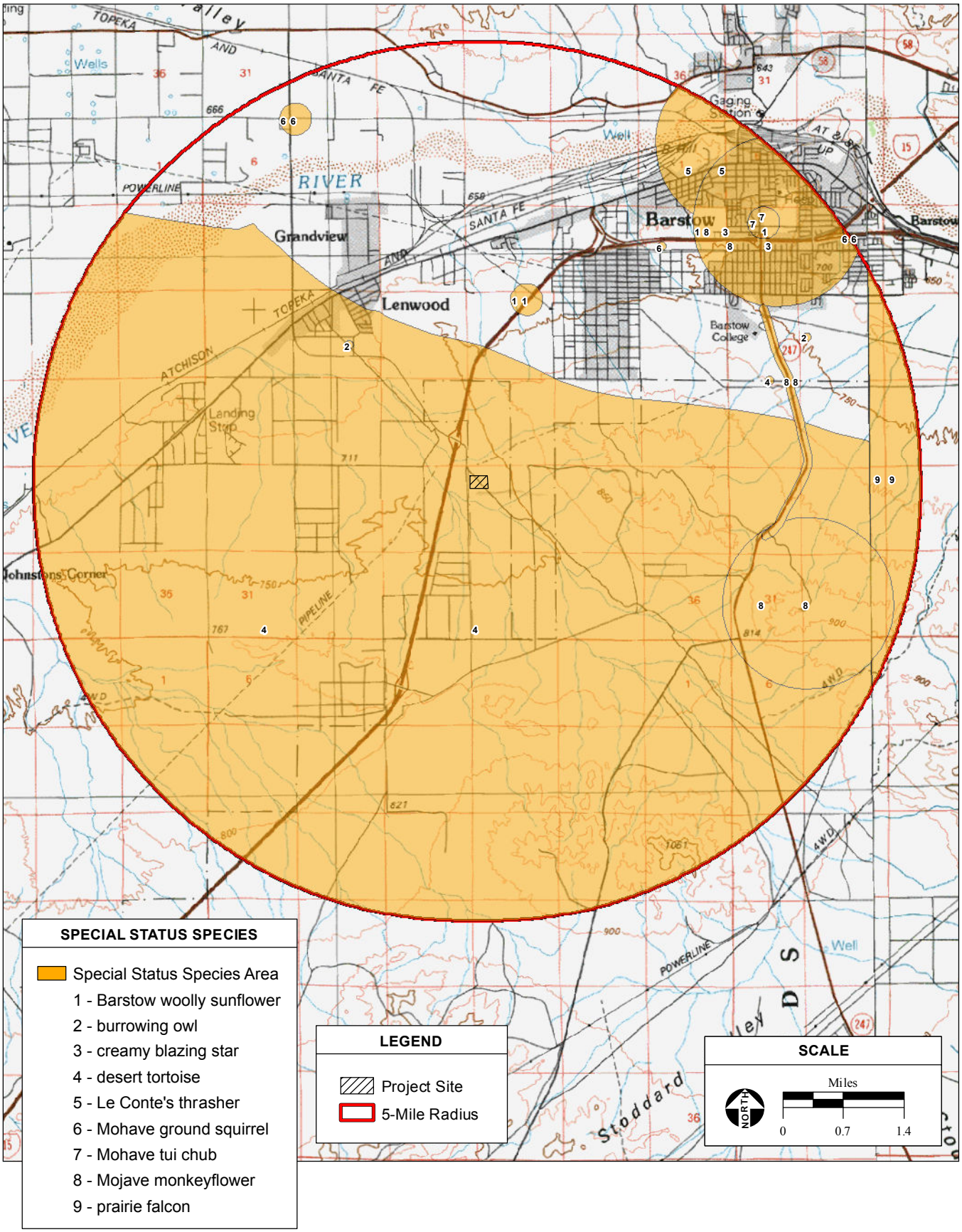
Three CNPS List 1B plant species are reported within five miles of the Barstow site and have potential to occur on-site: Barstow woolly sunflower (*Eriophyllum mohavense*), creamy blazing star (*Mentzelia tridentata*), and Mojave monkeyflower (*Mimulus mohavensis*). None of these species were observed during the field assessment on May 3 and 4, 2006, which was conducted during the blooming season for these species.

Bird Species

Two bird species, which are both California species of special concern, are reported within five miles of the Barstow site and have potential to occur on-site: western burrowing owl (*Athene cunicularia*) and Le Conte's thrasher (*Toxostoma lecontei*). Suitable nesting and foraging habitat exists for these bird species on-site. A third bird species, the prairie falcon (*Falco mexicanus*) is reported within five miles of the Barstow site (**Figure 3.4-3**). This species has no special federal or state status, but is tracked by the CNDDB. No suitable nesting habitat for this species exists on-site, but there is marginally suitable foraging habitat on-site. None of these three species were observed during the May 3 and 4, 2006 and March 29 and 30, 2012 field assessments, which were conducted during the appropriate identification period for these birds.

Mammal Species

State threatened Mojave ground squirrel (*Spermophilus mohavensis*) is the only state-listed mammal species that is reported to occur within five miles of the project site that has potential to occur on-site. Mohave ground squirrel was not observed during the May 3 and 4, 2006 and March 29 and 30, 2012 field assessments, which were conducted during the appropriate identification period for this species.



SOURCE: California Natural Diversity Database, 2009; "Victorville, CA" USGS 100K Topographic Quadrangle, San Bernadino Baseline & Meridian; AES, 2011

Figure 3.4-3

Special Status Species Within 5-Miles of the Barstow Site

TABLE 3.4-1
STATE AND CNPS SPECIAL-STATUS SPECIES LIST FOR THE BARSTOW SITE

SCIENTIFIC NAME COMMON NAME	STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
PLANTS				
Eriophyllum mohavense Barstow woolly sunflower	--/1B	San Bernardino County	Chenopod scrub, Mojave desert scrub, and playas; elevation 1,640-3,150 feet.	April-May
Mentzelia tridentata Creamy blazing star	--/1B	Imperial, Inyo, Kern, Riverside, San Bernardino, and San Diego Counties	Mojave desert scrub; elevation 2,300-3,805 feet.	March-May
Mimulus mohavensis Mojave monkeyflower	--/1B	San Bernardino County	Joshua tree woodland and Mojave desert scrub in gravelly areas; elevation 1,970-3,935 feet.	April-June
ANIMALS				
Birds				
Athene cunicularia Western burrowing owl	CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year
Toxostoma lecontei Le Conte's Thrasher	CSC/--	An uncommon to rare local resident in Southern California deserts from Inyo County south to the Mexican border and in western and southern San Joaquin Valley.	Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat.	All Year
Mammals				
Spermophilus mohavensis Mohave ground squirrel	CT/--	Restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. Populations in southwestern San Bernardino County appear to be extirpated.	Optimal habitats are open desert scrub, alkali desert scrub, and Joshua tree. Also feeds in annual grasslands.	All Year

STATUS CODES
STATE: California Department of Fish and Game
CT Listed as Threatened by the State of California
CSC California Species of Special Concern

CNPS: California Native Plant Society
List 1B Plants rare or endangered in California and elsewhere

Source: California Department of Fish and Game, 2003; CNPS, 2009.

TABLE 3.4-2
FEDERAL SPECIAL-STATUS SPECIES LIST FOR THE BARSTOW SITE

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
ANIMALS				
Reptiles				
Gopherus agassizii Desert tortoise	FT	In California, occurs throughout major portions of the Mojave and Sonoran deserts, generally between 2000-3300 feet in elevation.	Within the West Mojave Desert, primarily occur in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub.	March-October

STATUS CODES
FEDERAL: U.S. Fish and Wildlife Service and National Marine Fisheries Service
FT Listed as Threatened by the Federal Government

Source: U.S. Fish and Wildlife Service, 2009.

Federally Listed Species

Plant Species

Five federally listed plant species occur within San Bernardino County. Four of these five species, Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*), Cushenbury milk-vetch (*Astragalus albens*), Cushenbury oxytheca (*Oxytheca parishii var. goodmaniana*), and Parish's daisy (*Erigeron parishii*), occur primarily in carbonate deposits or soils derived from them, in the San Bernardino Mountains. Neither this habitat nor range approximates the habitat or range in which the project site occurs. Likewise, the project site is below the range of elevation that these four plant species are known to occur. The project site is also below the known range of elevation for the fifth federally listed plant, Lane Mountain milk-vetch (*Astragalus jaegerianus*). Soils on the project site do not provide habitat for Lane Mountain milk-vetch, as most plants of this species occur in shallow soils. The soils on-site are deep, mapped as Cajon Sand, 2 to 9 percent slopes (USDA, 1986). None of the five federally listed plant species known to occur within San Bernardino County have been documented within a five-mile radius of the project site. Cushenbury milk-vetch, Lane Mountain milk-vetch, Parish's daisy, Cushenbury buckwheat, and Cushenbury oxytheca were not observed within the project site during the May 3-4 field assessment, which was conducted during the blooming season for these federally-listed plant species.

Amphibian and Fish Species

All federally listed amphibian and fish species that occur in San Bernardino County, including arroyo toad (*Bufo microscaphus californicus*), California red-legged frog (*Rana draytonii*), bonytail chub (*Gila elegans*), Mohave tui chub (*Gila bicolor mohavensis*), and razorback sucker (*Xyrauchen texanus*) require intermittent or perennial aquatic habitat for survival. Suitable habitat for these species is not present within the project site.

Bird Species

Four federally listed bird species occur in San Bernardino County, including least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus*), and Yuma clapper rail (*Rallus longirostris yumanensis*). All of these species require some form of intermittent or perennial aquatic habitat. The least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo require dense riparian habitat types. The project site and vicinity lack riparian habitat. Yuma clapper rail requires marsh habitat, which does not occur within the project site or immediate vicinity.

Reptile Species

One federally listed threatened reptile species, Mojave desert tortoise (*Gopherus agassizii*) occurs in San Bernardino County. This species is also listed as "threatened" by the state. Desert tortoise has the potential to occur within the Mojave creosote bush scrub habitat on-site. A more detailed description of this species is provided below.

<u>Desert Tortoise (*Gopherus agassizii*)</u>
Federal Status – Threatened

The desert tortoise is a medium-sized, terrestrial reptile. It is a long-lived animal (maximum age in the wild is likely about 50 to 70 years) that begins reproducing at approximately 12 to 15 years of age. Desert tortoise activity patterns are primarily determined by ambient temperature and precipitation. They lay most of their eggs in the spring and, to a lesser extent, in the fall. Most precipitation in the West Mojave Desert occurs during the winter; therefore, most vegetation grows in the spring, and dries up by late May or June. Tortoises in the West Mojave are primarily active between May and June, with a secondary activity period from September through October. Tortoises may be seen, to a lesser extent, outside of these periods. Within the West Mojave Desert, the highest tortoise population densities are found in Mojave creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub (BLM, 2006a).

The USFWS published a final recovery plan for desert tortoise in May 2011 (2011 Recovery Plan; USFWS, 2011). The 2011 Recovery Plan replaces the 1994 Recovery Plan and divided Mojave desert tortoise into five recovery units: Upper Virgin River Recovery Unit, Northeastern Mojave Recovery Unit, Eastern Mojave Recovery Unit, Colorado Desert Recovery Unit, and Western Mojave Recovery Unit.

Recovery actions implemented pursuant to the former 1994 Recovery Plan included formalizing DWMAs through federal land use planning processes. DWMAs had no specific legal boundaries in the 1994 Recovery Plan. The BLM formalized the general DWMAs from the 1994 Recovery Plan through its planning process and administers them as ACECs, as identified within the 2011 Recovery Plan. ACECs are specific, legally defined, BLM designations where special management is needed to protect and prevent irreparable damage to important historical, cultural, scenic values, fish and wildlife, and natural resources (in this case, the Mojave desert tortoise) or to protect life and safety from natural hazards. The ACECs define specific management areas based on the general recommendations for DWMAs in the 1994 Recovery Plan. The BLM DWMAs/ACECs, together with National Park Service lands, designated wilderness areas, other lands allocated for resource conservation, and restricted access military lands provide an extensive network of habitats that are managed directly or indirectly for Mohave desert tortoise conservation (USFWS, 2011).

The project site does not occur within a designated ACEC or DWMA, USFWS designated critical habitat (59 FR 5820-5866), or other area managed directly or indirectly for Mojave desert tortoise conservation, as defined within the 2011 Recovery Plan. The nearest designated critical habitat for the Mojave desert tortoise is the Ord-Rodman DWMA, which occurs approximately four miles east of the project site. The Stoddard Valley OHV area is situated between the Ord-Rodman DWMA and the project site. The second nearest designated critical habitat for the Mojave desert tortoise is Superior-Cronese Lakes DWMA, which occurs approximately six miles north of the project site. Urban/developed areas within the City of Barstow are situated between the Superior-Cronese Lakes DWMA and the project site. The project site is within the Western Mojave Recovery Unit for the Mojave desert tortoise (USFWS, 2011). The Western Mojave Recovery Unit includes Fremont-Kramer, Superior-Cronese, and Ord-Rodman critical habitat units and the western half of Death Valley National Park, Marine Corps Air Ground Combat Center, Fort Irwin National Training Center, China Lake Naval Weapons Center, and Edwards Air Force Base.

There are two CNDDB records documented for this species within five miles of the project site (**Figure 5**). One record is from 2004 (CNDDB occurrence number 1) and the coordinates documenting the centroid of the record are located approximately 20 miles northwest of the project site. The record states that four primary populations were observed within 1,700 square miles comprised of several vegetation communities at elevations from 2,000 to 4,000 feet. The other record is from 2006 (CNDDB occurrence number 110) and occurs approximately two miles northeast of the project site. The record states that five adults and eight carcasses were observed on an approximately 75-acre property comprised of rocky hills, gravel soils, and sandy washes with creosote bush and white bur-sage vegetation.

The project site is dominated by Mojave creosote bush scrub with evidence of a transition to saltbush scrub. Mojave creosote bush scrub is suitable habitat for the desert tortoise. Although Mojave creosote bush scrub provides habitat for the Mojave desert tortoise, the habitat is of low quality on-site because of several dirt roads crisscrossing the site and the urban land uses and barriers to overland movement surrounding the project site including Lenwood Road, an outlet mall, developed areas within the City of Barstow to the west and north, and the Stoddard Valley OHV area, which is heavily used by off-road vehicle traffic, to the south and east. The highways located to the north and west of the project site are likely barriers to Mojave desert tortoise movement. No Mojave desert tortoises or their signs were observed during the March 30, 2012 protocol survey conducted within the project site (**Appendix T** of the Final EIS/TEIR). Given that the site is highly disturbed and the land uses surrounding the project site consist of OHV use, paved roads, and commercial development, and that no Mojave desert tortoise or their sign was observed during the biological surveys, this species is unlikely to occur within the project site.

3.4.2 Los Coyotes Site

Methodology

For the purpose of this EIS/TEIR, biological resources are considered to include all plants; vegetation communities and other wildlife habitats; wildlife; and waters of the U.S. Vegetation communities were identified during literature reviews and surveys. As done for the Barstow site, a review of the CNDDB was conducted and species lists were obtained from USFWS and the CNPS to identify special-status species or other sensitive biological resources potentially present on the three sites. A field assessment of the Los Coyotes site and vicinity was conducted on May 2, 2006. The field assessment was performed by pedestrian survey. All visible fauna and flora were noted and identified to the lowest possible classification; habitat types occurring in the study area were characterized and evaluated for their potential to support regionally occurring special-status species. The site was also assessed for the presence of waters of the U.S. and other biologically sensitive features.

Biological Setting

The Los Coyotes site is located within the Los Coyotes Reservation in San Diego County, California. Characteristic plant communities that occur in the region are non-native grassland and coast live oak woodland. Non-native grassland typically occurs below 3000 feet, but can exist as high as 4000 feet in the Tehachapi Mountains and in interior San Diego County. Plant species that are characteristic of non-native grasslands can include wild oat (*Avena fatua*), *Bromus* spp., storksbill (*Erodium* spp.), tarplant

(*Hemizonia* spp.), goldfields (*Lasthenia* spp.), *Layia* spp., *Lupinus* spp., peppergrass (*Lepidium dictyotum*), baby blue eyes (*Nemophila menziesii*), *Orthocarpus* spp., and *Phacelia* spp. (Holland, 1986). Coast live oak woodland is typically found below 4000 feet in elevation. The dominant tree that characterizes this habitat is coast live oak (*Quercus agrifolia*). The shrub layer is often poorly developed, but can include blue elderberry (*Sambucus mexicana*), *Ribes* spp., or toyon (*Heteromeles arbutifolia*). The herb layer is often dominated by ripgut brome (*Bromus diandrus*) and other grasses (Holland, 1986).

The Los Coyotes site ranges in elevation from approximately 4,500 feet above mean sea level (amsl) on the southwestern corner, to approximately 4,585 feet amsl on the northeastern corner. The site topography consists of terrain sloping gently to the south. The terrain slopes steeply to a higher elevation directly outside of the project site on both the east and west sides. Soil on the site is described as loamy alluvial sands and loamy course sands.

Habitat Types

Non-Native Grassland

The majority of the site consists of a non-native grassland community, comprising 11.19 acres (**Figure 3.4-4**). The dominant species within this habitat are buckwheat (*Eriogonum wrightii*), goldfields (*Lasthenia californica*), storksbill (*Erodium cicutarium*), and cheatgrass (*Bromus tectorum*). The subdominant species include *Lupinus* spp. and popcornflower (*Plagiobothrys nothofulvus*) (**Figure 3.4-5**, **Photo 8**).

Coast Live Oak Woodland

Approximately 5.77 acres of coast live oak woodland occurs in the northern and southern thirds of the project site. The dominant species present in this habitat includes coast live oak (*Quercus agrifolia*), canyon live oak (*Quercus chrysolepis*), and ripgut brome (*Bromus diandrus*). The subdominant species include miner's lettuce (*Claytonia perfoliata*) and California coffeeberry (*Rhamnus californica*) (**Figure 3.4-5**, **Photo 9**).

Intermittent Channel

San Ysidro Creek, an intermittent channel, exists immediately to the west of the Los Coyotes site (**Figure 3.4-5**, **Photo 11**). Approximately 0.19 acres of this channel occur within the Los Coyotes site. This channel has a sandy bottom and varies between 1 and 10 feet in width. The channel runs between the Los Coyotes site and the existing gravel road. Vegetation was very limited within the channel as the sandy base did not allow for much growth, but several grasses including soft chess (*Bruomus hordeaceus*), cheatgrass (Bromus tectorum), bulbous barley (*Hordeum murinum*), and ripgut broam (*Bromus diandrus*) grew along the banks of the channel.

Seasonally Wet Depressions

A large seasonally wet depression occurs south of the project site (**Figure 3.4-5**, **Photo 10**). A small portion of this wetland, 0.016 acres, exists within the project site, on the southern boundary of the site. The dominant species in this wetland area include willow (*Salix* sp.), *Juncus* sp., and barley (*Hordeum murinum*). Hydric soil indicators such as low chroma color values are present in this wetland area.

SOURCE: USGS Aerial Photo dated 4/1/04; AES, 2011

Figure 3.4-4

Habitat Map – Los Coyotes Site

PHOTO 8: Non-native grassland habitat on the Los Coyotes site. View from north to south.

PHOTO 9: Coast live oak woodland habitat on the Los Coyotes site. View from the northern portion of the site, looking north.

PHOTO 10: Large seasonal wetland immediately south of the Los Coyotes site. View from south to north onto site.

PHOTO 11: San Ysidro Creek, a seasonal drainage immediately west of the Los Coyotes site. View from north to south.

SOURCE: AES, 2011

Figure 3.4-5

Site Photographs – Los Coyotes Site

Waters of the U.S.

The Los Coyotes site is located in the San Luis Rey watershed. San Ysidro Creek, Cougar Canyon Creek, and Borrego Palm Canyon Creek are the main streams that run through the Los Coyotes reservation. The survey site is located near San Ysidro Creek, Panawatt Springs, Blackwater Hole, and Weowlet Spring.

An assessment of potential waters of the U.S. was conducted by AES during the May 2006 field survey. San Ysidro Creek, an intermittent channel, runs along the western boundary of the survey site. A small segment of a larger seasonal wetland extends into the southern boundary of the project site. The portion of the seasonal wetland within the project site is 0.016 acres. This wetland area is discussed above. **Figure 3.4-6** shows the location of these waters.

OBSERVED WILDLIFE

A variety of wildlife may use the habitats on the project site. The bird species observed on-site include: western bluebird (*Sialia mexicana*), red-tailed hawk (*Buteo jamaicensis*), Steller's jay (*Cyanocitta stelleri*), lesser nighthawk (*Chordeiles acutipennis*), Nuttall's woodpecker (*Picoides nuttallii*), acorn woodpecker (*Melanerpes formicivorus*), Anna's hummingbird (*Calypte anna*), lark sparrow (*Chondestes grammacus*), barn owl (*Tyto alba*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), band-tailed pigeon (*Columba fasciata*), yellow warbler (*Dendroica petechia*), oak titmouse (*Baeolophus inornatus*) and white-breasted nuthatch (*Sitta carolinensis*). Mammal species observed on-site include: pocket gopher (*Thomomys bottae*) and beechey ground squirrel (*Spermophilus beecheyi*). Mule deer (*Odocoileus hemionus*) and cattle (*Bos taurus*) tracks and scat were also seen on the project site.

Special Status Species

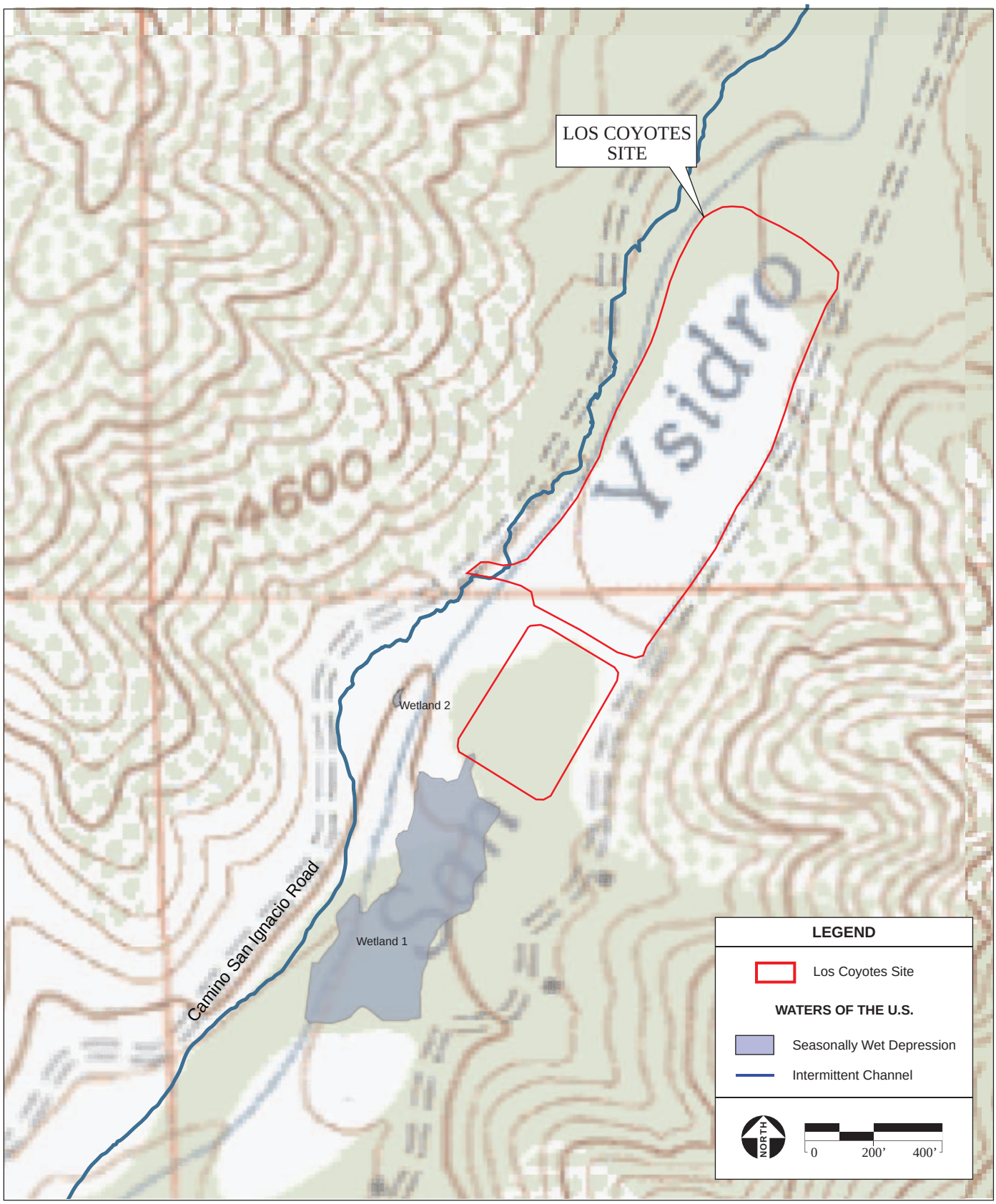
Methodology

The list of special status species that may be potentially impacted by developing the Los Coyotes site was generated based upon the same parameters as discussed for the Barstow site. Each resource was evaluated to generate a State and CNPS Special Status Species Table and a Target Species Table for the site (**Table 3.4-3** and **Table 3.4-4)**. A map of special status species within a five-mile radius of the site is shown in **Figure 3.4-7**. The federal species list that addressed species occurring within the 25,050 acre Los Coyotes Reservation, obtained from the Carlsbad USFWS office was used to determine federal species potential to occur on the Los Coyotes site (**Appendix F** of the Draft EIS/TEIR and **Appendix S** of this Final EIS/TEIR).

State and CNPS listed Species

Plant Species

Otay manzanita (*Arctostaphylos otayensis*) is the only state and/or CNPS listed plant species that is reported to occur within five miles of the project site and has potential habitat on and within the immediate vicinity of the project site. This species was not observed during the May 2, 2006 field assessment conducted by AES.



SOURCE: Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E,San Bernadino Baseline & Meridian; AES, 2011

Figure 3.4-6

Waters of the U.S. – Los Coyotes Site

Although the field assessment was not conducted during the blooming season for this plant, Otay manzanita is a perennial evergreen shrub and would have been identifiable to the genus level at a minimum at the time of the survey. No Arctostaphylos species were observed on the project site. This species does not occur in the project site.

State and CNPS listed Species

Plant Species

Otay manzanita (*Arctostaphylos otayensis*) is the only state and/or CNPS listed plant species that is reported to occur within five miles of the project site and has potential habitat on and within the immediate vicinity of the project site. This species was not observed during the May 2, 2006 field assessment conducted by AES. Although the field assessment was not conducted during the blooming season for this plant, Otay manzanita is a perennial evergreen shrub and would have been identifiable to the genus level at a minimum at the time of the survey. No *Arctostaphylos* species were observed on the project site. This species does not occur in the project site.

Mammal Species

Two special-status mammal species are reported to occur within five miles of the project site and have suitable habitat on and within the immediate vicinity of the site: Dulzura pocket mouse (*Chaetodipus californicus femoralis*) and Stephens' kangaroo rat (*Dipodomys stephensi*). Stephens' kangaroo rat is federally listed and discussed in the Federal Species section. Neither of these special-status mammal species was observed during the May 2, 2006 field assessment, which was conducted during the reasonable identification period for these species.

Sensitive habitat

One sensitive habitat, the desert fan palm oasis, was identified within a five-mile radius of the site in the CNDDB query. This habitat type was not observed during the May 2, 2006 field assessment conducted by AES.

Federally Listed Species

Amphibian Species

One federally listed amphibian species, the arroyo toad (*Bufo californicus*) has the potential to occur within the Los Coyotes Reservation.

Arroyo Toad (*Bufo californicus*)

Federal Status – Endangered

The arroyo toad is nocturnal and buries itself in soil within the streambed during the day. Adult toads emerge at night between late March and early July. Small to intermediate drainages and streams provide habitat for the arroyo toad. Optimal habitat includes streams with minimal current or shallow, gravelly pools that persist until at least July. The arroyo toad is found in isolated populations in southern California and Baja California, Mexico.

The nearest recorded occurrence of arroyo toad to the project site is approximately 8.5 miles northwest of the project site, at the Indian Flats campground, near San Luis Rey River, and was recorded in 1991

(CDFG, 2003). Critical habitat for this species does exist approximately 8 miles to the west of the project site, in the Warner Springs quadrangle (USFWS, 2006b). No critical habitat for arroyo toad exists within the project site. The portion of San Ysidro Creek that runs within and adjacent to the project site does not

TABLE 3.4-3
STATE AND CNPS SPECIAL-STATUS SPECIES LIST FOR THE LOS COYOTES SITE

SCIENTIFIC NAME COMMON NAME	STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
PLANTS				
Arctostaphylos otayensis Otay manzanita	--/1B	San Diego County.	Chaparral and cismontane woodland/ metavolcanic; elevation 900-5575 feet.	January - March
Mammals				
Chaetodipus californicus femoralis Dulzura pocket mouse	CSC/--	Distributed in California from San Francisco Bay south to the border of Mexico and east to the edge of the Great Valley.	Inhabits coastal scrub, chamise-redshank and montane chaparral, sagebrush, annual grassland, valley foothill hardwood, valley-foothill hardwood-conifer, and montane hardwood habitats.	All year

STATUS CODES

STATE: California Department of Fish and Game
CE Listed as Endangered by the State of California
CT Listed as Threatened by the State of California
CSC California Species of Special Concern

CNPS: California Native Plant Society
List 1A Plants presumed extinct in California
List 1B Plants rare or endangered in California and elsewhere
List 2 Plants rare or endangered in California, but more common elsewhere

Source: U.S. Fish and Wildlife Service, 2006a; California Department of Fish and Game, 2003; CNPS, 2009.

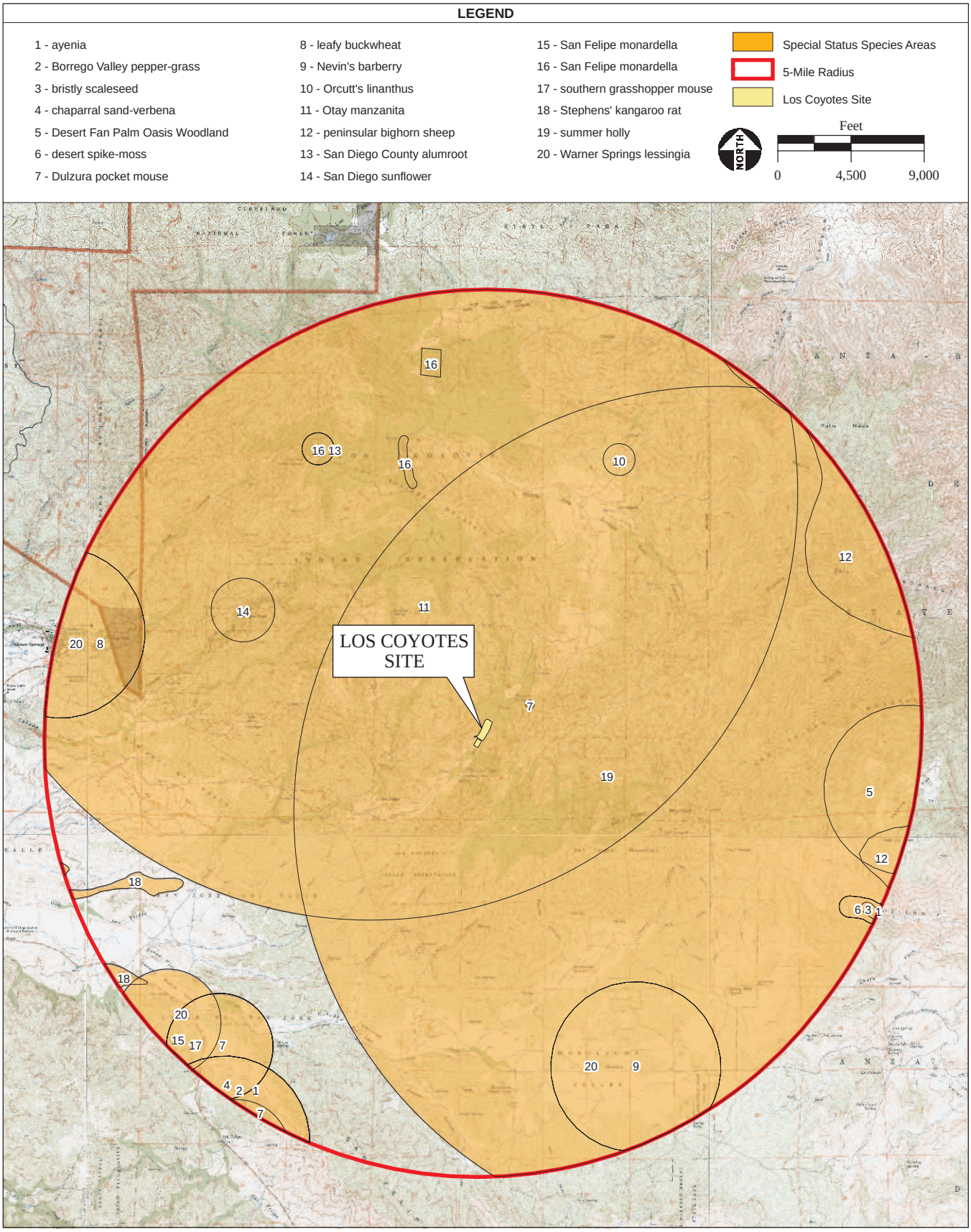
TABLE 3.4-4
FEDERAL SPECIAL-STATUS SPECIES LIST FOR THE LOS COYOTES SITE

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
ANIMALS				
Amphibians				
Bufo californicus arroyo toad	FE	Southern California and Baja California, Mexico.	Intermediate drainages and streams with minimal current or shallow, gravelly pools that persist until at least July.	March to July
Birds				
Empidonax traillii extimus Southwestern willow flycatcher	FE	Breeding sites range from California (south of the Santa Ynez River), New Mexico, the extreme southwest of Colorado, the extreme southern portions of Nevada and Utah, western Texas, and Baja California, del Norte, and Sonora, Mexico.	Dense riparian habitats along rivers, streams, or other wetlands.	May to July
Vireo bellii pusillus Least Bell's vireo	FE/CE/--	The entire range of the subspecies consists of the southwestern coastline of the United States in California below Santa Barbara, extending inland approximately to the edge of the Imperial Valley. The breeding range for this species encompasses greater Los Angeles and other metropolitan areas of southern California. The wintering habitat includes Baja California, Mexico, and the western coastline of northern and central Mexico.	Occupies dense, low, shrubby vegetation, generally early succession stages in riparian area, brushy fields, young second-growth forest or woodland, scrub oak, coastal chaparral, and mesquite brushlands, often near water in arid regions. The most critical structural component of the Least Bell's Vireo breeding habitat in California is a dense shrub layer, 0.6-3.0 m above ground.	May to August
Mammals				
Dipodomys stephensi Stephens' kangaroo rat	FE	The San Jacinto Valley from Riverside and San Diego Counties, and south to the vicinity of Vista.	Annual and perennial grassland, including buckwheat, chamise, brome grass, and filaree, or coastal scrub or sagebrush with sparse canopy cover.	All year.

STATUS CODES

FEDERAL: U.S. Fish and Wildlife Service and National Marine Fisheries Service
FE Listed as Endangered by the Federal Government
FT Listed as Threatened by the Federal Government
FC Federal candidate for listing

Source: USFWS, 2006a; USFWS 2010.



SOURCE: "Hot Springs Mt., CA" USGS 7.5 Minute Topographic Quadrangle, Section 26, T10S R4E, San Bernadino Baseline & Meridian; California Natural Diversity Database, 2005; AES, 2011

Figure 3.4-7

Special Status Species Within 5 Miles of the Los Coyotes Site

provide suitable breeding habitat for arroyo toad because the drainage does not have persistent water flow or pools. Small pools and wetland area that could potentially be suitable for arroyo toad breeding were observed in and adjacent to San Ysidro Creek approximately 200 yards downstream of the project site. If arroyo toads occur in these pools and wetland area, they may infrequently occur on the project site, as arroyo toads can range up to a kilometer from their breeding areas during the nonbreeding season. The arroyo toad was not observed during a May 2006 field survey conducted by AES.

Bird Species

Two federally listed bird species, the Southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*) have the potential to occur within the Los Coyotes Reservation.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Federal status – Endangered

The Southwestern willow flycatcher is one of four, possibly five willow flycatcher subspecies. Southwestern willow flycatcher typically nests and forages in dense riparian habitat along rivers, streams, or other wetlands. Vegetation that may be present at the breeding site includes willows (*Salix* sp.), seepwillow (*Baccharis* sp.), tamarisk and Russian olive (*Elegnus angustifolia*), or other shrubs or medium sized trees. The Southwestern willow flycatcher is most active between approximately one hour prior to sunrise and 10 am. Breeding and nesting takes place between May and July. Breeding sites for this bird occur in California (south of the Santa Ynez River), New Mexico, the extreme southwest of Colorado, the extreme southern portions of Nevada and Utah, western Texas, and Baja California, del Norte, and Sonora, Mexico.

The nearest critical habitat for the Southwestern willow flycatcher to the project site is approximately 8 miles to the southwest (USFWS 2006b). The San Diego Management Unit, within the coastal California Recovery Unit for the Southwestern willow flycatcher exists near Lake Henshaw, approximately 9 miles from the project site (USFWS, 2002b). No suitable nesting or foraging habitat for this species exists on the Los Coyotes site. A patch of suitable nesting habitat occurs approximately one-quarter mile southwest (downstream) of the site, along San Ysidro Creek. The habitat consists of approximately one acre of willow thicket adjacent to San Ysidro Creek. At this location, the creek had small pools of water during a May 2, 2006 field survey. The habitat meets criteria for consideration as willow flycatcher habitat; however, it is a small and relatively isolated patch of habitat. Furthermore, the closest CNDDB record is approximately 25 miles from the site. The southwestern willow flycatcher was not observed during field surveys conducted by AES in May 2006. The May field visit was performed during the nesting period for this bird. This species is not expected to occur at the Los Coyotes site.

Least Bell's Vireo (*Vireo bellii pusillus*)

Federal Status – Endangered

The least Bell's vireo is a summer resident of cottonwood-willow forest, oak woodland, shrubby thickets, and dry washes with willow thickets at the edges. It was formerly a common and widespread summer resident below about 2,000 ft in elevation in the western Sierra Nevada, throughout Sacramento and San Joaquin valleys, and in the coastal valleys and foothills from Santa Clara County south. Currently, its breeding range is in Southern California, with large populations in Riverside and San Diego counties and

smaller populations in Santa Barbara, Ventura, and San Diego counties, and in northern Baja California. Thickets of willow and other low shrubs, preferably with water nearby, provide foraging habitat and afford nesting and roosting cover.

The project site is not within critical habitat for the least Bell's vireo. Critical habitat exists approximately 7 miles to the northeast of the project site (USFWS, 2006b). The Los Coyotes site is not within any of the 14 population/metapopulation units described in the 1998 Draft Recovery Plan for the least Bell's vireo (USFWS, 1998). The closest documented occurrence of the least Bell's vireo is approximately 5.5 miles east of the Los Coyotes site, and several occurrences are documented within 10 miles of the site. A relatively small amount of willow thicket exists approximately .25 miles southwest (downstream) of the site along San Ysidro Creek. This willow thicket, however, does not represent suitable nesting or foraging habitat for the bird. The least Bell's vireo generally nests below an elevation of approximately 2,000 feet amsl. The nearby occurrences are all below an elevation of 3,000 feet. The Los Coyotes site is located at approximately 4,400 feet amsl, considerably higher than typical nesting habitat for this bird. The least Bell's vireo was not observed during field surveys conducted by AES in May 2006. This species is not expected to occur at the Los Coyotes site.

Mammal Species

One federally listed mammal species, the Stephens' kangaroo rat (*Dipodomys stephensi*) has the potential to occur on the Los Coyotes Reservation.

Stephens' Kangaroo Rat (*Dipodomys stephensi*)
Federal status – Endangered
Habitat for the Stephens' kangaroo rat includes annual and perennial grassland, including buckwheat, chamise, brome grass, and filaree, or coastal scrub or sagebrush with sparse canopy cover. The Stephens' kangaroo rat is nocturnal and active year round. Breeding occurs from April to June. This species inhabits the San Jacinto Valley from the City of Riverside, Riverside County, south to the vicinity of Vista, San Diego County.

No critical habitat has been designated for Stephens' kangaroo rat. Record of a population of this species exists approximately four miles south west of the site (CDFG, 2003) and an additional population exists at Warner Ranch, approximately six miles west of the site. The Central Conservation Planning Area, as listed in the 1997 Draft Recovery Plan for this species, is west of the site, near Lake Henshaw (USFWS, 1997). Suitable habitat for the Stephens' kangaroo rat exists on-site. This rodent was not observed during field surveys conducted by AES in May 2006.

3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of cultural resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.5.1 SETTING

Prehistory

Barstow Site Vicinity

The earliest accepted archaeological manifestation in the Far West is the Fluted Point Tradition (FPT), which is typified by a highly specialized flaked stone technology. The FPT, dated to the terminal Pleistocene (ca. 12,000 – 10,000 Before Present [B.P.]), is often associated with the hunting of large, now extinct, megafauna, although recent investigations suggest a more broad-spectrum subsistence strategy focused on ancient pluvial lakes and marshes. Artifacts related to the FPT have also been found in association with streams, springs, ponds, river terraces, and high mountain passes in California. Archaeological sites in California that have yielded artifacts related to the FPT include Tracy Lake (Beck 1971), Ebbetts Pass (Davis and Shutler 1969), Borax Lake (Harrington and Simpson 1948; Meighan and Haynes 1970), Tulare Lake (Riddell and Olsen 1969), and China Lake (Davis 1978).

During the early Holocene epoch, the FPT gave way to the Western Pluvial Lakes Tradition (WPLT) (Bedwell 1973). As the name suggests, the WPLT reflects a settlement and subsistence strategy focused on the large lakes fed by receding glaciers west of the Rocky Mountains. In California, a number of regional appellations have been given to archaeological cultures related to the tradition, most notably the Lake Mojave Complex and the San Dieguito Complex. The following prehistoric cultural history of the Mojave Desert is based on Warren (1984:409-430).

The Lake Mojave Period (8,000 to 5,000 B.C.) followed the FPT and reflects a more generalized adaptive strategy, which was first identified on the margins of the former Lake Mojave and associated environs. The temporally diagnostic artifacts associated with this period include Lake Mojave or Silver Lake projectile points that are found primarily in association with the shorelines of former pluvial lakes. Hunting and utilization of lacustrine resources presumably formed the subsistence base.

The Pinto Period (5,000 to 2,000 B.C.) follows the Lake Mojave Period and is characterized by the presence of Pinto Series projectile points. The Pinto Period likely reflects an occupation of the desert after a period of lake desiccation. This period of drying is related to the use of stream and spring habitats. Pinto Period sites appear to be a broadly generalized cultural pattern developed in response to the disappearance of lakes as a result of a change to a more arid climatic regime. It is possible that the Pinto Period developed directly from the Lake Mojave Period and ushered in the Archaic (a more generalized subsistence economy) in the Mojave Desert.

The Gypsum Period (2,000 B.C. to 500 A.D.) is marked by the presence of Elko Series projectile points. Very little is known regarding the subsistence base or social organization of Gypsum groups as few sites

dating from this period have been excavated. Archaeological remains dating from the Gypsum Period are relatively uncommon in the Mojave Desert, signifying that sites from this period are rare or underrepresented in the known archaeological record. Sites that have been identified from this period reflect a proliferation of manos and metates, representing a shift toward a hard seed economy and perhaps influences from the Southwest, signaling increased trade.

The Saratoga Springs Period (A.D 500 to 1200) is marked by Rose Spring and Eastgate Projectile Points. Rose Spring projectile points are similar in form to Elko Series points but are smaller, and signal the introduction of the bow and arrow. Sites from this period are some of the most common found in the Mojave Desert and represent a more diverse economic base, larger populations, and a highly mobile lifestyle. As well, this time marks the beginning of the Hakataya influence in the Southern Mojave Desert.

The Protohistoric Period (A.D. 1200 to Contact) is associated with Desert side-notched projectile points, increased reliance on hard-seed economies, and extensive trade networks. Southwestern pottery, including Colorado Buff Wares and locally produced Tizon Brown Ware, and other trade goods such as shell beads from the California coast are found throughout sites that date to this period. This period is assumed to reflect the late prehistory of the ethnographic groups inhabiting the region.

Los Coyotes Site Vicinity

Recent archaeological discoveries at Lake Elsinore and Domenigoni Valley place humans in this part of southern California as early as 8,000 to 9,000 years ago. Over the years there have been many sequences and chronologies proposed for the prehistoric cultural history of inland southern California, but at the present time there is not enough archaeological data to fine-tune these sequences into units any smaller than a few, very broadly defined periods. The various existing schemes are summarized by Grenda (1993) and Moratto (1984), who offer the following basic timeline:

9,000 to 8,000 B.P.	San Dieguito Period
8,000 to 1,500 B.P.	Millingstone/Pauma/Archaic/Encinitas Tradition
1,500 to Contact	Late Prehistoric/ San Lius Rey Complex/Luiseño Period

The San Dieguito Complex consists of a pre-millingstone cultural tradition with artifacts that include leaf-shaped lithic knives, foliate to ovoid bifaces, foliate and short-bladed shouldered points, crescents, choppers, core hammers, and a variety of scrapers. The lack of ground stone artifacts suggests a greater emphasis on big-game hunting than hard seed processing.

The Puama Complex/Encinitas Tradition represents a diversification in the resource base. Assemblages represent a seed-grinding, small-game-hunting, shellfish-collecting culture as contrasted with the non-millingstone San Dieguito Complex. Artifacts include a large number of basined millingstones, unshaped manos, a preponderance of flaked cobble tools, Pinto-like projectile points, and, occasionally, perforated stones. Burials tend to be flexed, with heads to the north, under stone cairns.

Finally, the San Luis Rey Complex and Luiseño Period, or Late Prehistoric Period, represents a cultural tradition directly correlated with specific Hokan-speaking groups and shift to intensified acorn processing

technology and diversification of the resource base. Features and artifacts from this period include cremations, bedrock mortars, millingstones, Western Triangular Cluster projectile points (Justice, 2002), bone awls, pottery vessels, stone and shell ornaments, and a proliferation of red and black pictographs. Protohistoric components of this complex include such non-aboriginal items as metal knives and glass beads.

Ethnography

Barstow Site Vicinity

At the time of Euroamerican contact, the Barstow area was occupied by the Vanyume. Occupying the northern reaches of the Mojave River, their neighbors included the Serrano to the south and the Kawaiisu to the northwest. The Vanyume spoke a language belonging to the Takic Family which they shared in common with other regional Native groups such as the Serrano, Cupeño, Cahuilla, and Kitanemuk (Bean and Smith, 1978:570). While the Vanyume were linked to their closest neighbors by trade, proximity, and by sharing an inter-intelligible language they also enjoyed amicable relations with the Mohave and Chemehuevi. (Kroeber 1925:614).

Few primary sources for the Vanyume exist in the literature, primarily as a result of the rapid and near complete decimation of the group between 1820 and 1834, when they were sent to missions and asistencias by Spanish missionaries. After the mission program was terminated by secularization in 1834 the only known survivors of the Vanyume returned to the Upper Mojave River where they intermarried with other neighboring Native groups (Kroeber 1957 and Stewart 1969). Additional information on the Vanyume and their neighbors can be found in Benadict (1924 and 1926), Kroeber (1925), Strong (1929), and Drucker (1937) and Stewart (1969).

While very little has been written concerning the nature of Vanyume settlement and subsistence patterns, their general adaptive strategies would have been limited by their environs and were likely analogous to that of other Mojave Desert dwellers. Remarking on the observations made by a Franciscan missionary in the latter half of the 18th century, who referred to the Vanyume peoples by the name “Beñemé”; Kroeber notes, at the lowest village [Father Francisco] Garcés found some bean and screw mesquite trees and grapevines; but the inhabitatants had nothing but tule roots to eat. They were described as naked; but they possessed blankets of rabbit and otter fur. Their snares were made of wild hemp. At one of the upper villages there were small game and Father Garcés describes being served acorn porridge (Kroeber, 1925:615). Access to acorn as a resource, in the desert, speaks not only to the mobility of the Vanyume but also to the trade access they enjoyed to the San Bernardino and San Gabriel mountain ranges, via the Mojave River. However, as previously noted, Garcés’ account would have been after the effects of Missionization had already been realized by the Native inhabitants of the region. Therefore, it is not clear what the lifeways of the Vanyume where prior to European contact. Yet, we may surmise, that they were highly mobile, and based on the resources available in their territory, that their diet included deer, mountain sheep, rabbit, waterfowl, acorns, mesquite, piñon nuts, and the fleshy bulbs of a variety of cacti.

Los Coyotes Site Vicinity

The Los Coyotes Reservation is located within territory that was occupied by the Cupeño-speaking Native Americans at their border with the mountain Cahuilla (Bean and Smith, 1978:588). Being one of the

smallest linguistic groups in southern California, the Cupeño occupied an approximately 10-mile area that included the mountains at the headwaters of the San Luis Rey River and encompassed the broad open valley of San Jose de Valle. The Cahuilla, their neighbors to the north, east, and south, occupied the valleys, passes, deserts, and mountains from San Bernardino to the Salton Sea. Both the Cupeño and Cahuilla language belong to the Cupan subgroup of the Takic family of Uto-Aztecan. Prior to 1902 the Cupeño occupied two permanent villages, *Kupa*, at the base of Hot Springs Mountain, and *Wilakalpa* (Bean and Smith, 1978:588). Although united by marriage, trade, and social intercourse, the two villages were politically independent.

The basic social unit of the Cupeño was the village community, or "tribelet" (Kroeber, 1925). Tribelets were organized by clan and were autonomous from each other. Dialects might encompass several tribelets and territories outside the village community were vaguely defined. The immediate area surrounding a village was owned in common by the headman's lineage. Clans were bound by social, religious, and territorial ties, but each maintained its distinctiveness, had its own gathering areas, and had its own leader.

Villages were often located near major drainages, inhabited mainly in the winter as it was necessary to go out into the higher elevations or west to the coast to establish temporary camps during food gathering seasons (i.e. spring, summer, and fall). Villages typically consisted of several conical, partially subterranean thatched houses, numbering from four or five to several dozen in larger villages, each house containing a single family of three to seven people. Round, semi-subterranean, earth-covered sweathouses were important for purification and curing rituals. A ceremonial structure, the *wamkis*, was in a centrally located area within the village that was enclosed by circular fencing (Bean, 1978:578).

The Cupeño economy was based on fishing, hunting, and gathering, with tribelet members moving to various places within their territory to take full advantage of different resources as they became available (Bean and Smith, 1978:578). Game, such as deer, rabbit, and waterfowl, was hunted either by the individual or in community drives. Also, the diversity of habitat produced a floral domain of great variety consisting of, among others, acorns, mesquite, piñon nuts, and the fleshy bulbs of a variety of cacti. Six varieties of acorns represented one of the most important staples of Cupeño subsistence and were particularly abundant within oak woodlands in interior valleys. Fire was used as a crop-management technique, as well as for communal rabbit drives. Some Cupeño tribelets defended their territory against trespassers, but land outside the village community was not considered privately owned (Bean and Smith, 1978). Individual material possessions were usually destroyed upon the death of an individual, so that the individual's spirit could take it all to the spirit world.

Historical Context

Barstow Site Vicinity

The first Euroamerican travel through the Barstow area occurred in 1776 with the Spanish Franciscan priest, Francisco Garces. His party was in search of a practical travel and trading route from southern Arizona and New Mexico to the missions in California (Hoover *et al*., 1990:304). By 1847, most of the Euroamerican traffic occurred over the "Old Spanish Trail," which forked northward from the Mojave

Road just a few miles east of the modern town of Barstow. The early travelers were a mix of mission escapees, merchants, explorers, trappers, raiders, and immigrants.

In the early 1860s, Euroamerican pioneers began settling along the Mojave River, deriving a living from the road traffic. They established way stations and ranches that provided travelers with the necessary supplies to make the difficult journey and protection from Indian hostilities. Even after the American occupation, raids on travelers by Indians and white raiders continued. One of the reasons settlement was deliberately encouraged in this area was the desire to discourage raiders from attacking the more densely inhabited areas (Hoover *et al*., 1990:30).

Though gold mining began in the early 1850s at the south end of Death Valley, large local developments did not start until the 1880s. The costly freight charges, crude mineral recovery methods, scarcity of water, and lack of local subsistence all conspired to delay significant development. However, in 1881 rich silver deposits were discovered and gave birth to the Daggett Mills, and Calico and Waterman mines. The wealth of these mines brought 3,500 people to the area, and Calico became one of the most prosperous camps of the great Southwest. Later, a dramatic drop in the price of silver led to the collapse of the silver boom and the virtual abandonment of the area (Hoover *et al.*, 1990:314; City of Barstow, 2006a).

In 1853, shortly after the admission of California to the Union, the U.S. Congress authorized a program of exploration and surveys of the Southwest in anticipation of a railroad route from the Mississippi River to the Pacific Ocean. The desert portion of this route was finally built by Southern Pacific in 1883 when it completed the line from Mojave to Needles (Hoover *et al*., 1990:307; City of Barstow, 2006a).

San Bernardino County was organized in 1853 from territory that was at first part of Los Angeles and San Diego counties. The name comes from the Spanish for Saint Bernardine of Siena. The city of San Bernardino has always been the county seat (Gudde, 1990:330; Hoover *et al*., 1990:304).

In 1886, the California Southern, a subsidiary of the Atchison, Topeka & Santa Fe Railway Co., completed its line from National City near San Diego through the Cajon Pass to join the transcontinental line. The junction of the two lines, first known as Waterman Junction after the California Governor, was changed to Barstow in honor of William Barstow Strong, the Santa Fe Railway Co. president. Barstow's first building was a hotel-depot located on the south bank of the Mojave River (Gudde, 1990:27; City of Barstow, 2006a). Santa Fe became the main transportation link and employer within Barstow and the surrounding desert communities.

Barstow, like many of the surrounding desert communities, was slow to grow in its initial years. Originally located north of the railroad tracks, Barstow moved south and uphill in the mid 1920s as Santa Fe repeatedly expanded its rail facilities. Later, as the state highway system started to develop, local businessmen lobbied officials to locate the intersection of Routes 66 and 91 near First Street, resulting in the construction of a huge overpass above the Santa Fe rail yards and the Mojave River bridge built in 1930 (City of Barstow, 2006a). As a result of continued rail developments, employment and services, Santa Fe was indirectly responsible for the present highway locations and the manner in which they

converge in Barstow, as well as the later establishment of nearby military reservations in the 1940s. On September 30, 1947, Barstow was incorporated as a city.

Los Coyotes Site Vicinity

When the Spaniards first visited the nearby area of Agua Caliente, west of the project area, they found a large Cahuilla Indian Rancheria there. All the land surrounding the springs, later called Warner's Springs, including Los Coyotes Reservation, about 49,000 acres in all, later came under the joint control of Missions San Diego and San Luis Rey. These lands stayed in their possession until secularization and the subsequent confiscation of mission property in 1836 (Hoover *et al*., 1990:326). In 1844, Jonathan Trumbull Warner, an immigrant from Connecticut, laid claim to the land and became one of the first Americans to become an extensive landholder in California. The estate he built became a major stop for travelers along the Immigrant Trail. Warner Springs was to the south what Sutter's Fort was to the north. Cattle ranching dominated other agricultural activities and the development of the hide and tallow trade with the United States increased during the early part of this period. The Pueblo of San Diego was well established during this period and Native American influence and control greatly declined. The Mexican period ended when Mexico ceded California to the United States after the Mexican-American War of 1846-48.

Soon after American control was established, gold was discovered in California, which triggered a tremendous influx of Euroamericans that effectively ended much of the Spanish and Mexican cultural influence and eliminated what control Native Americans had retained. Few Mexican Ranchos remained intact because of land claim disputes. The homestead system also increased American settlement beyond the coastal plain.

Native Americans who lived in the former village of Kupa, within Warner's Ranch, were forcibly relocated to the Pala Reservation in 1902. The Los Coyotes Reservation was established in 1900 by an Act of Congress, and expanded to include Cleveland National Forest land by an Executive Order in 1914. Today this reservation is home to primarily Cahuilla people (California Dept. of Housing and Community Development, 1996).

3.5.2 REGULATORY FRAMEWORK

National Register of Historic Places Eligibility

The National Historic Preservation Act of 1966 (as amended through 2000) authorizes the National Register of Historic Places (NRHP), a program for the preservation of historic properties ("cultural resources") throughout the Nation. The eligibility of a resource for NRHP listing is determined by evaluating the resource using criteria defined in 36 C.F.R § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and

A. that are associated with events that have made a significant contribution to the broad patterns of our history;
B. that are associated with the lives of persons significant in our past;
C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. that have yielded, or may be likely to yield, information important to prehistory or history.

Unless a site is of exceptional importance, it is not eligible for listing in the NRHP until 50 years after it was constructed.

All properties change over time. Therefore, it is not necessary for a property to retain all its historic physical features or characteristics in order to be eligible for listing on the NRHP. The property must, however, retain enough integrity to enable it to convey its historic identity; in other words, to be recognizable to a historical contemporary. The NRHP recognizes seven aspects or qualities that, in various combinations, define integrity:

1. **Location** – the place where the historic property was constructed or the place where the historic event occurred.
2. **Design** – the combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting** – the physical environment of a historic property.
4. **Materials** – the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. **Workmanship** – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
6. **Feeling** – a property's expression of the aesthetic or historic sense of a particular period of time.
7. **Association** – the direct link between an important historic event or person and a historic property (National Park Service 1990).

To retain historic integrity a property will always possess several, and usually most, of these aspects. In order to properly assess integrity, however, significance (why, where, and when a property is important) must first be fully established. Therefore, the issues of significance and integrity must always be considered together when evaluating a historic property.

While most historic buildings and many historic archaeological properties are significant because of their association with important events, people, or styles (criteria A, B, and C), the significance of most prehistoric and historic-period archaeological properties is usually assessed under criterion D. This criterion stresses the importance of the information contained in an archaeological site, rather than its intrinsic value as a surviving example of a type or its historical association with an important person or event. It places importance not on physical appearance but rather on information potential.

Based upon the findings of the cultural resources technical reports, the Lead Agency (Bureau of Indian Affairs (BIA)) makes a determination identified as a Finding of Effect. This determination is then forwarded to the State Historic Preservation Officer for concurrence. Given the fact that no cultural resources were identified within the project site, the BIA would reach a finding of No Historic Properties Effected. Upon SHPO concurrence with this finding the Section 106 process would be concluded.

3.5.3 PREHISTORIC AND HISTORIC RESOURCES – BARSTOW SITE

Records and Literature Search

Methodology

Prior to the field study, a records search was conducted at the San Bernardino Archaeological Information Center (SBIC) of the California Historical Resources Information System, which is housed at the San Bernardino County Museum, San Bernardino, California. The SBIC, an affiliate of the State of California Office of Historic Preservation (OHP), is the official State repository of archaeological and historical records and reports for San Bernardino County. Additional research was conducted using the resources on file at the AES Sacramento office.

The records search and literature review for this study were done (1) to determine whether known cultural resources had been recorded within or adjacent to the study area; (2) to determine whether known resources have been reported in archaeological, ethnographic, and historical documents and literature; and (3) to assess the likelihood of unrecorded cultural resources based on the distribution of nearby archaeological sites in relation to their environmental setting.

The records search area includes the Barstow project site and all areas within a 0.5 mile radius from the perimeter of the Barstow project site. Included in the review were the following inventory and databases: *California Inventory of Historical Resources* (OHP, 1976), *Five Views: An Ethnic Historic Site Survey for California* (OHP, 1988), *California Historical Landmarks* (OHP, 1990), *California Points of Historical Interest* (OHP, 1992), *Historic Properties Directory Listing for San Bernardino County* (OHP, 2006a), and the *National Register of Historic Places Index of Listed Properties* (NPS computer listing for February 2006). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings of the California Historical Landmarks and California Points of Historical Interest (through February 8, 2005) not found in the published versions.

Results

The records search found that no recorded prehistoric or historic cultural resources are located within the Barstow project site. Two cultural resources studies conducted within portions of the project site were identified. In 1980, a linear survey was conducted for the Bureau of Land Management that included the western portion of the project site. This survey resulted in the recording of 27 prehistoric resources and 3 historic-period resources. None of these were located on the Barstow project site (Sutton 1980). Far Western Anthropological Research Group also conducted a linear survey as part of a gas pipeline alignment that ran through the western portion of the project site. They recorded an isolated cryptocrystalline flake (P-36-0061) just outside the southwestern boundary of the project area. However,

no cultural resources were identified within the portion of the survey that included the Barstow project site (McGuire and Glover 1991).

In addition to the two studies mentioned above, three other cultural resources studies have been conducted within 0.5 miles. An extensive linear survey was conducted as part of a proposed Mojave pipeline corridor from Arizona to California that ran along the northern boundary of the project site (McGuire 1990). LSA Associates conducted a linear survey of the Lenwood Road extension that runs from Barstow past the western portion of the project site (Rosenthal and Padon, 1993). A series of parcels totaling 32 acres located 0.25 miles southwest of the project site was also surveyed (Parr 1996). None of these three studies identified any cultural resources adjacent to or within one-half mile of the project area.

One prehistoric archaeological site (CA-SBR-2289) has been recorded within one-half mile of the project site. This site consists of a lithic scatter containing chalcedony flakes, a scraper, and bifacial foliates (Stricler, 1970). No other archaeological sites have been recorded within a 0.5-mile radius of the project site.

Historic maps of the project area were consulted to identify any structures that were in the project area or evidence of past land uses. The 1931 GLO Plat and 1934 USGS Barstow depict a structure possibly in the northwest corner of the project site. The 1934 map also depicts a road bisecting the project site on a north-south axis.

Native American Heritage Commission Consultation

On March 27, 2006, the State of California Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American cultural resources in the study area (**Appendix G** of the Draft EIS/TEIR). On April 21, 2006, the NAHC responded indicating it has no knowledge of Native American sacred sites within the Area of Potential Effects (APE). However, the NAHC did provide a list of Native American individuals and groups for further consultation. Consultation letters were sent to these groups and individuals on May 15, 2006, and again on October 18, 2006. Follow-up phone calls were conducted with these individuals and groups during June 2006. To date, no response has been received from any of the individuals or groups contacted. Copies of correspondence are included in **Appendix G** of the Draft EIS/TEIR.

Field Survey

Methodology

An M.A.-level archaeologist conducted an intensive-level pedestrian survey of the 23.1-acre Barstow site on May 3 and 4, 2006 (AES, 2012). The survey consisted of 15-meter-wide linear transects in an east-west direction throughout the project site. Surface visibility was considered excellent (90 percent) as the ground was only sparsely vegetated with creosote brush scrub. Cut banks along seasonal drainages and washes in the project site were examined for soil profiles and buried deposits. Numerous rodent burrow backdirt piles, off-road trails, and road cuts were examined for indicators of buried archaeological deposits.

Results

No prehistoric or historic-period cultural resources were identified as a result of the survey. The remains of a former structure located near the far northeastern portion of the property were observed and found to be outside the project site of Alternative A and B. The remains include a housepad, concrete and asphalt fragments, a graded driveway, structural debris, and several non-native ornamental trees. None of these remains (ferrous metal, plastics, modern window glass, and electrical wire) suggest any antiquity, and the trees were identified as being no more than 10 to 15 years old.

3.5.4 PALEONTOLOGICAL RESOURCES – BARSTOW SITE

Typologies and Formation Processes

The processes involved in the preservation of paleontological resources result in several types of remains. Factors affecting the persistence of paleontological resources vary between species, and broadly include geological formation processes (**Section 3.2**), climate, soil and rock chemistry, and organism morphology. Paleontological resources are discussed here as fossil remains, although other types of remains occur elsewhere.

Fossils are the remains of plants and animals embedded in layers of rock, which have retained some degree of their original characteristics over a long period of time. Remains are buried under layers of sediment, which under building pressure become sedimentary rock. Paleontological remains can be those of organism structure, such as skeletal parts, shell, tree trunks, pollen, endocasts or imprints, or they can be remnants of activity, such as footprints or tunnels of burrowing organisms. Soft tissues are less frequently fossilized, because they usually decay before fossilization processes take place. Since fossil remains occur in sedimentary rock formations, they tend to persist unless the rock has undergone significant changes. Fossils do not occur in metamorphic rock formations.

Fossils of considerable age may be subject to varying degrees of mineralization, at times resulting in the total replacement of original, organic matter by minerals. The agents of mineralization are most commonly composed of calcium carbonates such as calcite and aragonite, and silicates such as quartz, opal and chalcedony. Less common materials are iron disulfides such as pyrite and marcasite; limonite; sulphates, such as gypsum; phosphates, such as calcium phosphate and vivianite; and glauconite. These minerals are typically transported in minute quantities by seeping water, with aggregation over time.

Regional Characteristics

As noted in **Section 3.2**, the USGS and the California Division of Mines and Geology describe the geological profile of the Barstow site and vicinity as being comprised of lake and playa alluvium and terrace deposits, mostly non-marine in origin, and both unconsolidated and semi-consolidated; and Pliocene and/or Pleistocene sandstone, shale and gravel, loosely consolidated.

Database Search

The online database at the University of California Museum of Paleontology was consulted on April 12, 2006. While no records of paleontological finds exist on the Barstow site, three noteworthy specimen

records within 13 miles of the site were found. In the uplands approximately 13 miles north of the Barstow site, a mammal specimen from the Miocene epoch was reported. Meanwhile, a record was found for Pleistocene mammal specimens approximately 10 miles southwest of the site. Additionally, a record of an unspecified invertebrate specimen was found associated with the highlands approximately seven miles southeast of the Barstow site.

Potential for Fossil Discovery

No records exist to indicate the presence of known paleontological resources on the Barstow site. Based upon the association of Pleistocene mammal specimens with elevations and geological environments similar to those of the Barstow site, a slight potential exists for subsurface deposits of Pleistocene mammals to be present.

Results

No Paleontological resources were identified as a result of the field survey of the Barstow site.

3.5.5 Prehistoric and Historic Resources – Los Coyotes Reservation

Records and Literature Search

Methodology

A records search was conducted at the South Coast Information Center (SCIC) of the California Historical Resources Information System, which is housed at San Diego State University, San Diego, California. The SCIC, an affiliate of the State of California Office of Historic Preservation (OHP), is the official State repository of archaeological and historical records and reports for San Diego County. Additional research was conducted using the resources on file at the AES Sacramento office.

The records search and literature review for this study were done (1) to determine whether known cultural resources had been recorded within or adjacent to the study area; (2) to determine whether known resources have been reported in archaeological, ethnographic, and historical documents and literature; and (3) to assess the likelihood of unrecorded cultural resources based on the distribution of nearby archaeological sites in relation to their environmental setting.

The records search area includes the Los Coyotes project site as well as additional areas within a 0.25 mile radius from the perimeter of the Los Coyotes project site. Included in the review were the following inventory and databases: *California Inventory of Historical Resources* (OHP, 1976), *Five Views: An Ethnic Historic Site Survey for California* (OHP, 1988), *California Historical Landmarks* (OHP, 1990), *California Points of Historical Interest* (OHP, 1992), *Historic Properties Directory Listing for San Diego County* (OHP, 2006b), and the *National Register of Historic Places Index of Listed Properties* (NPS computer listing for February 2006). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings of the California Historical Landmarks and California Points of Historical Interest (through February 8, 2005) not found in the published versions.

Results

The review found that no prehistoric or historic-period cultural resources have been recorded within the APE; however, five prehistoric sites and one historic-period cultural resource have been recorded within the 0.25 mile radius of the records search. The prehistoric sites consist of bedrock mortar outcrops that have habitation debris associated with them. The historic-period resource consists of a rock and cement mortar water reservoir with a wooden frame roof (Pigniolo and Dieter, 2000).

Additionally, the review found that portions of the APE have been previously studied for cultural resources. In 2002, Tierra Environmental Services (Pigniolo *et al*., 2002) conducted a survey as part of a campground hazardous fuel reduction project that included approximately 70 percent of the northern portion of the APE. Though seven cultural resources were identified as part of the study, none were located within the present APE. A linear survey has also been conducted of Los Coyotes Road (Pigniolo and Baksh, 2000) that is included in the western portion of the APE as part of a road improvement project. Though several resources were identified along the road, none were located within the present APE.

Native American Heritage Commission Consultation

On March 27, 2006, the State of California NAHC was asked to review the Sacred Lands file for information on Native American cultural resources in the study area (**Appendix G** of the Draft EIS/TEIR). The NAHC responded on April 27, 2006 indicating they had no knowledge of Native American sacred sites within or adjacent to the project site. However, they did provide a list of Native American individuals and groups for further consultation. On May 24, 2006 consultation letters were sent to these individuals and groups. Follow-up phone calls were conducted with these individuals and groups during June 2006. Two response letters were received by AES and are included with copies of all consultation correspondence in **Appendix G** of the Draft EIS/TEIR**.**

Field Survey

Methodology

An M.A.-level archaeologist conducted an intensive pedestrian survey of the 19-acre project site on May 2, 2006 (AES, 2010). The survey consisted of 15-meter-wide linear transects in a north-south direction throughout the project site. Surface visibility was considered good (70 percent) as the ground was thinly vegetated and soils were exposed. Cut banks along San Ysidro Creek, a semi-permanent drainage, were examined for soil profiles and buried deposits. Numerous rodent burrow backdirt piles, off road trails, and road cuts were examined for indicators of buried archaeological deposits.

Results

No prehistoric or historic-period cultural resources were identified as a result of the survey. The remains of a former campground located northeast of the project site were observed. These included several cinderblock outhouses, picnic tables, and portable latrines. None of these features appear to be of significant antiquity and are considered modern.

3.5.6 PALEONTOLOGICAL RESOURCES – LOS COYOTES RESERVATION

Regional Characteristics

As noted in **Section 3.2**, the California Division of Mines and Geology (CDMG) describes the region including the Los Coyotes site as comprised of a geological formation process, which began in the Jurassic and Late Cretaceous eras, wherein a series of volcanic islands off the coastline of today's San Diego region were associated with the formation of a granitic and gabbroic batholith beneath the region. Geological formations of this type are known to contain several varieties of paleontological resources.

Database Search

The online database at the University of California Museum of Paleontology was consulted on April 19, 2006. No records were found for specimens within 20 miles or less of the Los Coyotes site. The nearest recorded specimen was an unspecified Pliocene vertebrate at a locality known as Coyote Creek, approximately 23 miles northeast of the Los Coyotes site.

Potential for Fossil Discovery

No records exist to indicate the presence of known paleontological resources on the Los Coyotes site. Based upon the association of Pleistocene mammal specimens with elevations and geological environments similar to the Los Coyotes site, a slight potential exists for subsurface deposits of Pleistocene mammals to be present.

Results

No Paleontological resources were identified as a result of the field survey of the Los Coyotes site.

3.6 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

This section addresses the existing socioeconomic conditions of the Barstow and Los Coyotes sites and surrounding regions. The general and site specific profiles of socioeconomic conditions described in this chapter provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.6.1 SOCIOECONOMIC CHARACTERISTICS OF SAN BERNARDINO COUNTY (BARSTOW SITE)

Population

Regional

As shown in **Table 3.6-1**, the population of San Bernardino County as of January 1, 2010 was approximately 2,073,149 people. The majority of the regional population resides in the southwest portion of San Bernardino County within proximity to Los Angeles. San Bernardino County has an incorporated population of approximately 1,776,865 people and an unincorporated population of approximately 296,284 people. The 2010 population of the City of Barstow was approximately 24,281 or 1.2 percent of San Bernardino County's total population. The closest city, Victorville, is approximately 25 miles southwest, and the City of San Bernardino is approximately 65 miles southwest.

TABLE 3.6-1
BARSTOW SITE REGIONAL POPULATION

Location	Population		
	2000	2005	2010
State of California	33,873,086	36,676,931	38,648,090
San Bernardino County	1,710,139	1,945,835	2,073,149
Unincorporated County	292,857	302,121	296,284
City of Barstow	21,119	23,646	24,281
Source: California Department of Finance, 2010.			

Population Trends

The population of San Bernardino County grew from 1,710,139 people in 2000 to 1,945,835 people in 2005, an increase of approximately 13.8 percent. Between 2005 and 2010, San Bernardino County's population has expanded to approximately 2,073,149 people, an increase of about 6.5 percent. From 2000 to 2005, the unincorporated population of San Bernardino County increased by approximately 3.2 percent. From 2005 to 2010, the unincorporated population decreased by 1.9 percent to approximately 296,284 people. The population of Barstow increased by 11.9 percent when the number of residents increased from 21,119 in 2000 to 23,646 in 2005. Between 2005 and 2010 Barstow saw a population increase of approximately 635 residents, or 2.7 percent. Overall, the state has experienced approximately

14 percent growth since 2000; whereas San Bernardino County has experienced an approximately 21 percent growth.

Housing

In January 2010, California was estimated to have approximately 13,591,866 housing units, of which approximately 801,723 or 5.90 percent were vacant. In the same month, compared to the State of California, San Bernardino County had roughly twice the percentage of vacant units, and Barstow had almost three times the percentage of vacant units. As shown in **Table 3.6-2**, in January 2010 there were estimated to be 693,712 housing units in San Bernardino County, of which 11.58 percent were vacant (DOF, 2010). The unincorporated areas of San Bernardino County were estimated to have 130,266 units, of which 28.31 percent were vacant. Barstow had 10,160 housing units, of which 17.10 percent were vacant. Between 2000 and 2010, both the City of Barstow and the County experienced steady housing growth. Based on the information presented in **Table 3.6-2**, it was determined that the total number of housing units increases annually by approximately 1.45 percent, while the percentage of vacant units tends to decrease annually by approximately 0.2 percent.

TABLE 3.6-2
BARSTOW SITE REGIONAL HOUSING

Location	2000		2005		2010	
	Total Units	% Vacant	Total Units	% Vacant	Total Units	% Vacant
State of California	12,214,550	5.83	12,941,231	5.85	13,591,866	5.90
San Bernardino County	601,369	12.10	645,394	11.74	693,712	11.58
Unincorporated County	126,863	28.03	128,279	27.55	130,266	28.31
City of Barstow	9,153	16.45	9,756	16.78	10,160	17.10
Source: California Department of Finance, 2010.						

Employment

As shown in **Table 3.6-3**, San Bernardino County had approximately 870,800 people in its labor force and a 14.8 percent unemployment rate in March 2010. Barstow had approximately 10,800 people in its labor force and an 18.3 percent unemployment rate in March 2010. The labor force is generally defined as employed workers and unemployed workers actively looking for work. Compared to San Bernardino County unemployment rates, Barstow was 3.5 percent higher in March 2010; and compared to State unemployment rates, Barstow was 5.3 percent higher in March 2010.

In 2009, San Bernardino County had a labor force of 864,290 people, of which 13.0 percent (112,660 people) of the labor force was unemployed (Bureau of Labor Statistics, 2009). In 2009, the U.S. unemployment rate averaged 9.3 percent; lower than the unemployment rate in San Bernardino County. Since 2000, the labor force in San Bernardino County has increased by an average rate of 1.5 percent each year. According to the Council of Economic Advisers, it is projected that the U.S. will observe an approximate 6.5 percent unemployment rate in 2014 (Council of Economic Advisers, 2010).

The largest industries in Barstow, which account for approximately 68 percent of the labor force, are: retail trade; transportation, warehousing, and utilities; educational, health, and social services; arts, entertainment, recreation, accommodation, and food services, and public administration (U.S. Census Bureau, 2000).

TABLE 3.6-3
BARSTOW SITE REGIONAL LABOR FORCE ESTIMATES (MARCH 2010)

Location	Labor Force	Unemployed	Unemployment Rate
State of California	18,317,000	2,381,000	13.0
San Bernardino County	870,800	128,900	14.8
City of Barstow	10,800	2,000	18.3

Notes: Not Seasonally Adjusted.
Source: EDD, 2010.

Income

The median household income of San Bernardino County in 2008 was $54,768 (U.S. Census Bureau, 2008). Barstow had a median household income less than the County at $35,069 in 1999, which is the most current data available for Barstow as of June 2010 (U.S. Census Bureau, 2000). The median household income of San Bernardino County was 10.2 percent below the median household income for California, which was $61,017 in 2008 (U.S. Census Bureau, 2008).

Property Taxes

The Barstow site is located on the three San Bernardino County tax parcels 0428-171-66, 0428-171-67, and 0428-171-68. The San Bernardino County Assessor's office has records of the value of each parcel in 2010. From these records, the total appraised value for all three parcels in 2010 was $550,731, and the total property tax value for all three parcels in 2010 was approximately $6,634 (San Bernardino County, 2011). A portion of the property taxes collected by the County are distributed to local districts and the City of Barstow to fund public services.

Crime

Table 3.6-4 shows crimes reported by the Barstow Police Department (BPD) compared to California including robbery, aggravated assault, murder, forcible rape, burglary, larceny, and motor vehicle theft in 2005, which represents the most recent data available.

TABLE 3.6-4
BARSTOW 2005 CRIME RATE PER 100,000 PEOPLE

Area	Population Coverage	Robbery	Aggravated Assault	Murder	Forcible Rape	Burglary	Larceny	Motor Vehicle Theft
Barstow Police Department	23,684	291.3	840.2	4.2	88.7	1,287.8	2,081.6	1,068.2
California	36,132,147	176.1	317.3	6.9	26.0	693.3	1,916.5	712.8

Source: Federal Bureau of Investigation, 2006.

Crime rates per 100,000 people reported by the BPD in 2005 were higher than California. It is important to note that rates are presented as crimes per 100,000 people for comparison purposes. As shown, the population covered by the BPD for these statistics is 23,684. Therefore, the actual number of crimes for each category reported by the BPD in 2005 is less than one quarter the number shown. Murder was the only category that had a greater rate of occurrence in California than the BPD. For the remaining categories the rate reported by the BPD was greater than California, but similar larceny rates existed for the two areas. The majority of all crimes reported by the BPD were categorized as larceny. Larceny for these statistics is considered the unlawful taking, carrying, leading, or riding away of property from the possession of another, except for motor vehicle theft (Federal Bureau of Investigation, 2006).

Schools

The Barstow Unified School District (BUSD) serves an area of approximately 330 square miles including the City of Barstow and the communities of Lenwood, Hodge, and Hinkley. The school district consists of eight elementary schools, one intermediate school, two middle/junior high schools, one senior high school, one continuation high school, and one adult school. Enrollment in the BUSD has increased by 0.8 percent over the past decade from 6,720 students in 2000/2001 to 6,774 students in 2008/2009. The average class size in the BUSD has decreased over the past decade from 27.5 in 2000/2001 to 26.0 in 2008/2009, a 5.4 percent decrease. The student to teacher ratio for the 2008/2009 school year, 21.1:1, was slightly greater than that of California (20.9:1) (Ed-Data, 2010). Approximately 57.2 percent of the enrolled students receive free or reduced meals. Developer fees within the City of Barstow contribute to funding for permanent classroom facilities. Other financial burdens of the District due to growth are met primarily through property taxes and tax increment funds from the Redevelopment Agency (City of Barstow, 1997).

Lenwood Elementary School is the closest elementary school to the Barstow site, located approximately three miles to the northwest. Lenwood Elementary School oversees grades K-5. The school has a total enrollment of 330 students and a staff of 19 teachers, resulting in a student to teacher ratio of 17.3:1. Barstow Junior High is the closer of the two middle/junior high schools to the Barstow site, located approximately five miles to the northeast. The school has 973 students enrolled in grades 7-8 and a staff of 42 teachers, resulting in a student to teacher ratio of 23.1:1. Barstow High School, grades 9-12, is located approximately six miles northeast of the Barstow site. The school has a total enrollment of 1,843 students and a staff of 75 teachers, resulting in a student to teacher ratio of 24.9:1

The Barstow Community College District serves 12,000 square miles including the City of Barstow and communities of Yermo, Dagget, Newberry Springs, Hinkley, and Baker. The Barstow College is located at 2700 Barstow Road and is accredited by the California Department of Education and United States Department of Education. Degree programs result in granting of either an Associate in Arts or Associate in Science degree.

3.6.2 SOCIOECONOMIC CHARACTERISTICS OF SAN DIEGO COUNTY (LOS COYOTES SITE)

Population

Regional

San Diego County's January 2010 population was approximately 3,224,432 people (**Table 3.6-5**). The population in unincorporated areas of San Diego County accounted for 15.6 percent of the total county population in 2010. The City of San Diego (excluding contiguous cities), which is located in the southwestern portion of the county, accounted for approximately 42.6 percent of the total population. The Los Coyotes site is located in the northeastern portion of the county, relatively isolated from the substantial metropolitan population of San Diego.

TABLE 3.6-5
LOS COYOTES SITE REGIONAL POPULATION

Location	Population		
	2000	2005	2010
State of California	33,873,086	36,676,931	38,648,090
San Diego County	2,813,833	3,039,424	3,224,432
Unincorporated County	442,832	471,732	503,320
Source: California Department of Finance, 2010.			

Population Trends

The population of San Diego County grew from 2,813,833 in 2000 to 3,039,424 in 2005, an increase of 8.0 percent. Between 2005 and 2010, San Diego County's population increased 6.1 percent to 3,224,432. The unincorporated population of San Diego County grew by 11.1 percent from 2000 to 2005. From 2005 to 2010, the unincorporated population of San Diego County grew by 6.6 percent. The growth rate of San Diego County was marginally less than that of the State from 2000 to 2005, and marginally greater from 2005 to 2010.

Housing

As shown in **Table 3.6-6**, in January 2010 there were 1,154,228 housing units in San Diego County, of which 4.4 percent were vacant. The unincorporated portions of San Diego County were estimated to have 167,104 housing units, of which 6.19 percent were vacant. In 2010 the State was estimated to have 13,591,866 housing units, of which 5.9 percent were vacant. From 2000 to 2010, the percentage of vacant units in San Diego County has been less than the State.

Employment

As shown in **Table 3.6-7**, in March 2010 San Diego County had a labor force of approximately 1,567,700 and an unemployment rate of 11.0 percent. The unemployment rate of San Diego County was less than the State in March 2010, which had an unemployment rate of 13.0 percent.

TABLE 3.6-6
LOS COYOTES SITE REGIONAL HOUSING

Location	2000		2005		2010	
	Total Units	% Vacant	Total Units	% Vacant	Total Units	% Vacant
State of California	12,214,550	5.83	12,941,231	5.85	13,591,866	5.90
San Diego County	1,040,149	4.37	1,105,439	4.42	1,154,228	4.41
Unincorporated County	152,910	5.94	159,277	6.34	167,104	6.19
Source: California Department of Finance, 2010.						

TABLE 3.6-7
LOS COYOTES SITE REGIONAL LABOR FORCE (MARCH 2010)

Location	Labor Force	Unemployed	Unemployment Rate (%)
State of California	18,317,000	2,381,000	13.0
San Diego County	1,567,700	172,300	11.0
Notes: Not Seasonally Adjusted. Source: EDD, 2010.			

In 2004 the largest industry in San Diego County, comprising 19 percent of the labor force, was educational services, health care, and social assistance; the next largest, comprising 13 percent of the labor force, was professional, scientific, management, administrative and waste management services; comprising 12 percent was retail trade; comprising ten percent was arts, entertainment, recreation, accommodation, and food services; comprising nine percent was manufacturing; and comprising eight percent was finance, insurance, real estate and rental and leasing.

Income

The median household income of San Diego County in 2008, which represents the most current data available, was $62,820 (U.S. Census Bureau, 2008), which was slightly higher than the median household income for California, which was $61,017 in 2008.

Property Taxes

Since the Los Coyotes site is currently tribal land, the land is not subject to property tax payments.

Crime

Table 3.6-8 shows crimes reported by the SDCSD compared to California including robbery, aggravated assault, murder, forcible rape, burglary, larceny, and motor vehicle theft in 2005, which represents the most current data available. Crime rates per 100,000 people reported by the San Diego County Sheriff's Department (SDCSD) in 2005 were lower than California. For each category California reported a greater rate than the SDCSD. The majority of all crimes reported by the SDCSD were categorized as larceny (Federal Bureau of Investigation, 2006).

TABLE 3.6-8
SAN DIEGO COUNTY 2005 CRIME RATE PER 100,000 PEOPLE

Area	Population Coverage	Robbery	Aggravated Assault	Murder	Forcible Rape	Burglary	Larceny	Motor Vehicle Theft
San Diego County Sheriff's Department	457,895	59.0	266.4	2.8	18.8	539.2	1,010.9	455.1
California	36,132,147	176.1	317.3	6.9	26.0	693.3	1,916.5	712.8
Source: Federal Bureau of Investigation, 2006.								

Schools

The Warner Unified School District (WUSD) serves an area of approximately 432 square miles in rural northeast San Diego County, including the Santa Ysabel and Los Coyotes Indian Reservation (WUSD, 2010). The WUSD consists of a preschool, an elementary school, a combined middle/high school, and a continuation school. Enrollment in the WUSD has decreased 16 percent over the past decade from 318 in 2000/2001 to 266 in 2008/2009. The average class size in the WUSD decreased by 30 percent over the past decade from 20.3 students in 2000/2001 to 14.2 students in 2008/2009. The 2008/2009 student to teacher ratio (15.3:1) was lower than the State average of 20.9:1 over the same period (Ed-Data, 2010). Approximately 67 percent of Warner Elementary School families qualified for free or reduced-price lunch programs in the 2008/2009 school year, down from 82 percent in the previous year (Ed-Data, 2010).

Warner Elementary School is located approximately 6 miles west of the Reservation. Warner Elementary School oversees grades 1-6. The school had a total enrollment of 99 students and a staff of 5 teachers in the 2008/2009 year, resulting in a student to teacher ratio of 19.8:1. Warner High School is located at the same site as Warner Elementary School. Warner High School oversees grades 6-12. The school had a total 2008/2009 enrollment of 113 students and a staff of 9.9 teachers, resulting in a student to teacher ratio of 11.4:1. The San Jose Valley Continuation High School had two students and 1.2 teachers in 2008/2009 (Ed-Data, 2010).

3.6.3 SOCIOECONOMIC CHARACTERISTICS OF LOS COYOTES TRIBE

Population and Labor

Table 3.6-9 below provides demographic information for the Los Coyotes Tribe from 2006, which represents the most current data available. As shown in **Table 3.6-9**, the Los Coyotes Band of Cahuilla and Cupeño Indians (Los Coyotes Tribe) has a total enrollment of 328 members, of which, approximately 82 members live on the reservation and are included in the Tribal Service Population. Of the Tribal Service Population, approximately 20 members are under the age of 16, approximately 36 members are between the ages of 16 and 64, and approximately one member is age 65 or older. The labor force of the Los Coyotes Tribe consists of 35 members ages 13 and older, of which 50 percent were unemployed and 44 percent were employed, but below the poverty level. Census 2000 data reports a household median income of $14,167 for the Tribe labor force. Thirteen households were considered low-income, defined by the Tribe as an annual income of less than $30,000.

Of the 328 Los Coyotes tribal members, approximately 82 live on the Reservation. The majority of the remaining tribal members live in Southern California in San Diego, Riverside, and San Bernardino counties. Those that live on the Reservation reside in the 19 mobile and fixed homes scattered throughout the Reservation. Other development on the Reservation consists of Tribal administration buildings and ancillary facilities. Tribal members are employed at a variety of jobs including six members within the private sector of Warner Springs. School aged children at the Reservation attend both Warner Springs Schools and Nolie High School. The town of Warner Springs is located approximately six miles west of the Reservation. In addition to schools and employment opportunities the town provides the nearest post office, bank, retail stores, and other services.

TABLE 3.6-9
LOS COYOTES TRIBE POPULATION AND LABOR FORCE ESTIMATES

	Total
Tribal Enrollment	328
Tribal Service Population	82
Under age 16	20
Age 16 through 64	36
Age 65 and over	1
Unavailable for work	5
Available for work	35
Employed	16
Employed but Below the Poverty Line	7
Unemployment rate	50%
Source: Los Coyotes Tribe Personal Contact, 2010	

Tribal Government

The Reservation is governed by an Executive Council and a General Council. The Executive Council consists of tribal officers including a Spokesperson, Vice Spokesperson, four at-large council members, and one alternate member. Tribal officers are elected for one-year terms. The General Council consists of all tribal members age 21 and older. For any business, policy, and planning decisions the Executive Council provides advisory services and the final decision is determined by voting in the General Council (Los Coyotes Tribe Personal Contact, 2006).

3.6.4 ENVIRONMENTAL JUSTICE

Regulatory and Policy Framework

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, as amended, directs federal agencies to develop an Environmental Justice Strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The Council on Environmental Quality (CEQ) has oversight responsibility of the federal government's compliance with Executive Order 12898 and the National Environmental Policy Act (NEPA). The CEQ, in consultation with the U.S. Environmental Protection Agency (USEPA) and other agencies, has developed

guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed.

According to guidance from the CEQ (1997b) and USEPA (1998), agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by a proposed action and, if so, whether there may be disproportionately high and adverse environmental effects to those populations. Communities may be considered "minority" under the executive order if one of the following characteristics apply:

- The cumulative percentage of minorities within a Census tract is greater than 50 percent (primary method of analysis).
- The cumulative percentage of minorities within a Census tract is less than 50 percent, but the percentage of minorities is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

According to USEPA, either the county or the state can be used when considering the scope of the "general population." A definition of "meaningfully greater" is not given by the CEQ or USEPA, although the latter has noted that any affected area that has a percentage of minorities that is above the state's percentage is a potential minority community and any affected area with a minority percentage double that of the state's is a definite minority community under Executive Order 12898.

Communities may be considered "low-income" under the executive order if one of the following characteristics applies:

- The median household income for a Census tract is below the poverty line (primary method of analysis).
- Other indications are present that indicate a low-income community is present within the Census tract (secondary method of analysis).

In most cases, the primary method of analysis will suffice to determine whether a low-income community exists in the affected environment. However, when a Census tract income may be just over the poverty line or where a low-income pocket within the tract appears likely, the secondary method of analysis may be warranted. Other indications of a low-income community under the secondary method of analysis include limited access to health care, overburdened or aged infrastructure, and dependence on subsistence living.

Affected Environment

To determine whether a proposed action is likely to have disproportionately high and adverse effects on a population, agencies must identify a geographic scale for which they will obtain demographic information. Census tracts are a small, relatively permanent statistical subdivision of a county delineated by a local committee of Census data users for the purpose of presenting data. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living

conditions at the time of establishment. Therefore, statistics of Census tracts provide a more accurate representation of a community's racial and economic composition.

Barstow Site Census tracts that were analyzed include Census Tract 118, which contains the Barstow Site, and Census tracts that are adjacent or relatively close to Census Tract 118 but do not cover an expansive area (**Figure 3.6-1**). Los Coyotes site Census tracts that were analyzed include Census Tract 209.03, which contains the Los Coyotes site, and Census tracts that are adjacent or relatively close to Census Tract 209.03 but do not cover an expansive area (**Figure 3.6-2**).

Race

The following races are considered minorities under the executive order:

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black, not of Hispanic origin
- Hispanic

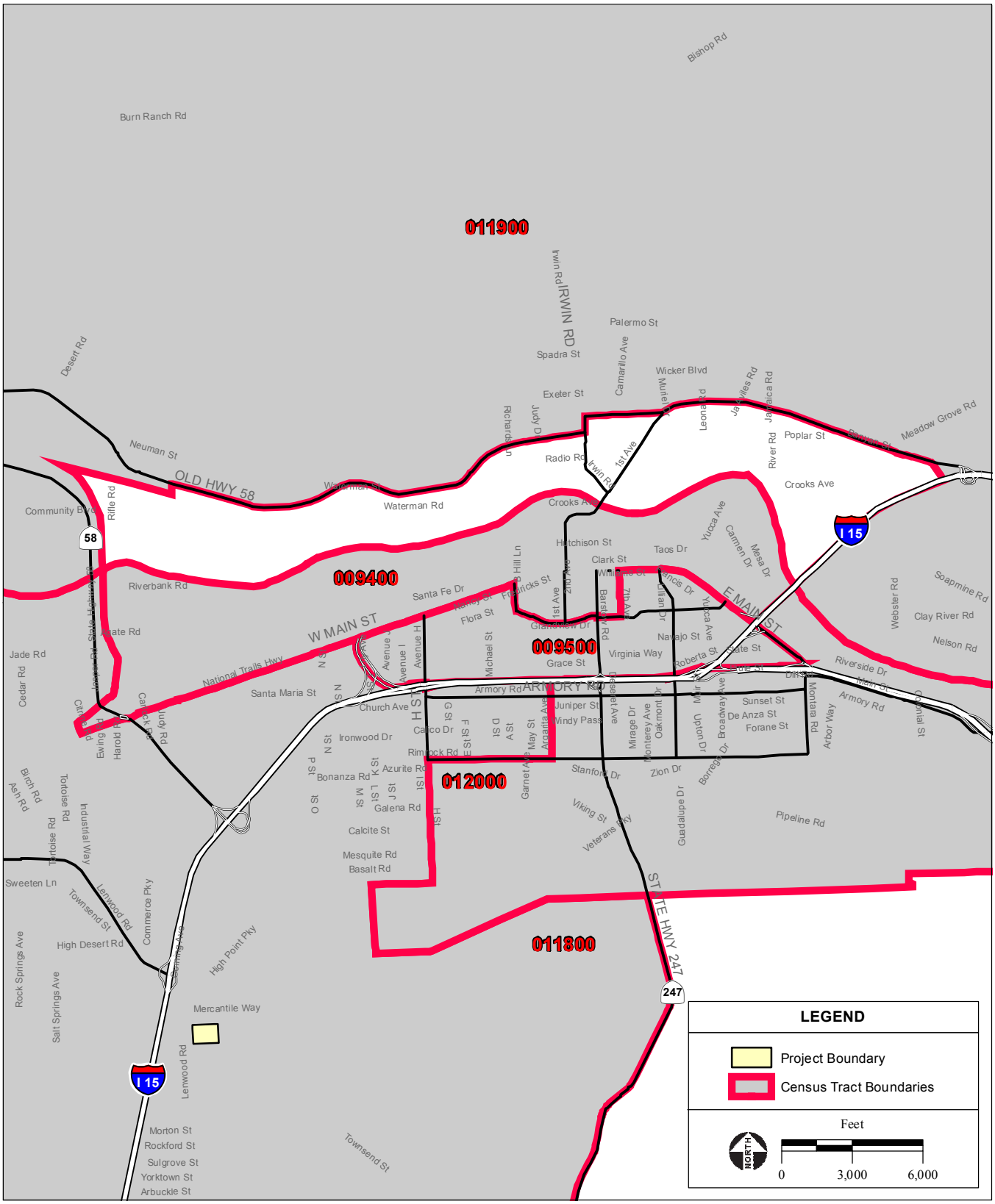
Populations of two or more races were also considered to be a minority race for the purpose of the environmental justice analysis.

Census 2000 data represents the most current racial data available by Census tract. Since the data was reported, the racial composition of the Census tracts is not expected to have changed substantially. Conservative assumptions will be applied to any borderline situations where a minor change in racial composition could affect the minority status of a Census tract. **Tables 3.6-10** and **3.6-11** display the population of each minority race by Census tract in the vicinity of the Barstow and Los Coyotes sites.

TABLE 3.6-10
MINORITY POPULATION – BARSTOW SITE AND REGION

Census Tract	Total 2000 Population	Total Population: Hispanic or Latino	Total population: not Hispanic or Latino; population of one race; Black or African American alone	Total population: not Hispanic or Latino; population of one race; American Indian and Alaska Native alone	Total population: not Hispanic or Latino; population of one race; Asian alone	Total population: not Hispanic or Latino; population of one race; Native Hawaiian and Other Pacific Islander alone	Total population: not Hispanic or Latino; population of one race; some other race alone, other than white	Total population: not Hispanic or Latino; population of two or more races	Total population: minority	Percent minority
94	3,040	1,567	365	54	51	14	10	79	2,140	70%
95	6,819	2,498	651	105	148	37	12	191	3,642	53%
118	6,393	2,006	303	82	79	34	12	134	2,650	41%
119	3,644	921	85	46	48	12	12	83	1,207	33%
120	11,690	3,753	1,467	215	447	147	21	431	6,481	55%

Source: U.S. Census Bureau, 2000.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Community Blvd
Rifle Rd
Riverbank Rd
Jade Rd
Cedar Rd
Ash Rd
Birch Rd
Tortoise Rd
Industrial Way
Sweeten Ln
Rock Springs Ave
Salt Springs Ave
High Desert Rd
Townsend St
Lenwood Rd
Commerce Pky
High Point Pky
Mercantile Way
Morton St
Rockford St
Sulgrove St
Yorktown St
Arbuckle St
Palermo St
Spadra St
Exeter St
Wicker Blvd
Radio Rd
Waterman Rd
Crooks Ave
Hutchison St
Clark St
Taos Dr
Santa Fe Dr
Flora St
Grace St
Virginia Way
Navajo St
Santa Maria St
Church Ave
Armory Rd
Juniper St
Windy Pass
Calico Dr
Ironwood Dr
Rimrock Rd
Azurite Rd
Bonanza Rd
Galena Rd
Calcite St
Mesquite Rd
Basalt Rd
Stanford Dr
Zion Dr
Viking St
Veterans Pky
Guadalupe Dr
Pipeline Rd
Sunset St
De Anza St
Forane St
Poplar St
Meadow Grove Rd
Crooks Ave
Soapmine Rd
Clay River Rd
Nelson Rd
Webster Rd
Riverside Dr
Arbor Way
Montana Rd
Colonial St
Michael St
Yucca Ave
Carmen Dr
Mesa Dr
Mirage Dr
Monterey Ave
Oakmont Dr
Broadway Ave
Borrego Dr
Garnet Ave
May St
Arcadia Ave
Barstow Rd
7th Ave
1st Ave
2nd Ave
Francis Dr
Hillian Dr
Roberta St
Dinsmore St
Irwin Rd
Judy Dr
Leonard Dr
Jacaranda Rd
River Rd
Ewing Rd
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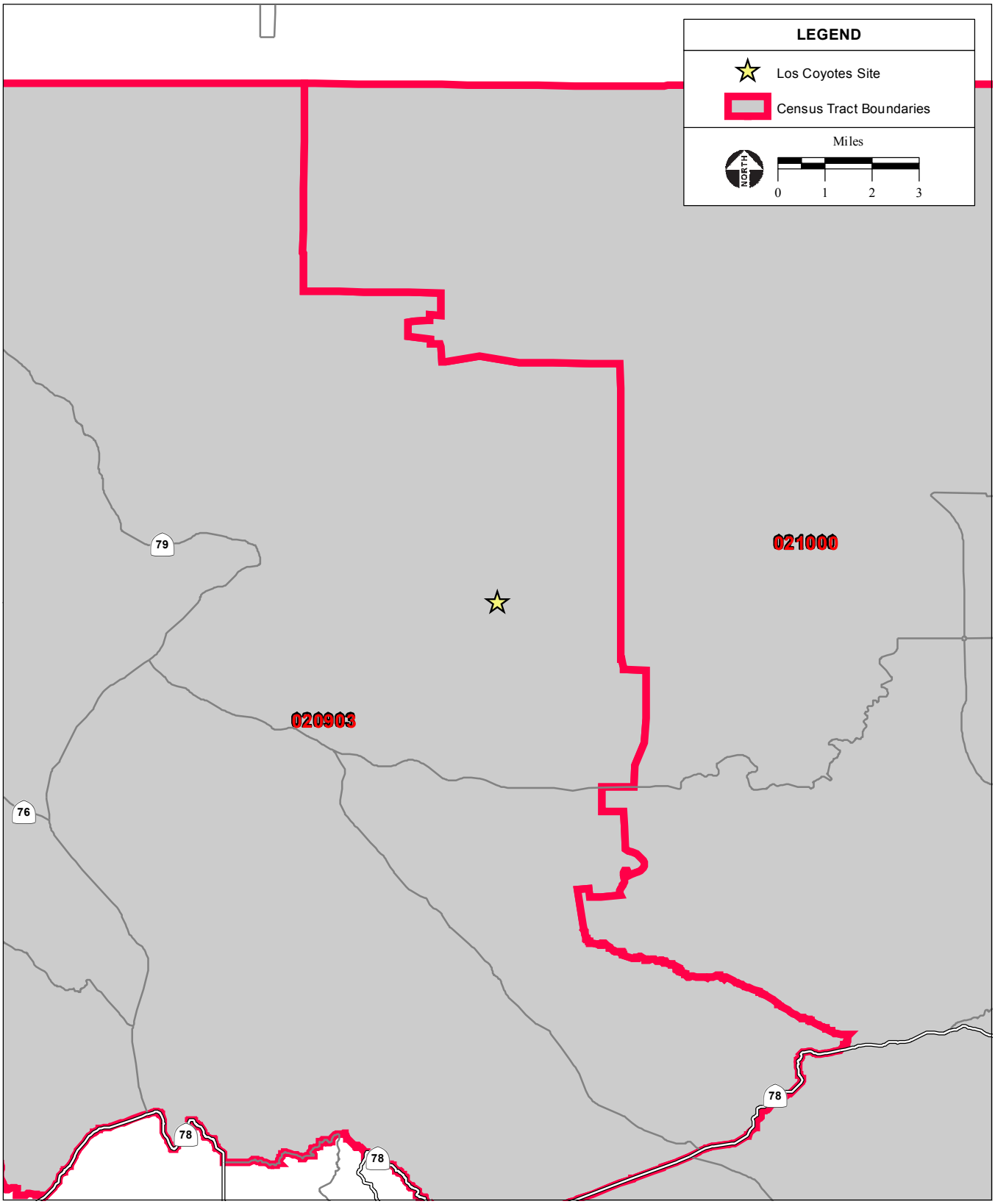


SOURCE: ESRI Data, 2006; AES 2011

Figure 3.6-2
Los Coyotes Site Census Tracts

TABLE 3.6-11
MINORITY POPULATION – LOS COYOTES SITE AND REGION

Census Tract	Total 2000 Population	Total Population : Hispanic or Latino	Total population: not Hispanic or Latino; population of one race; Black or African American alone	Total population: not Hispanic or Latino; population of one race; American Indian and Alaska Native alone	Total population: not Hispanic or Latino; population of one race; Asian alone	Total population: not Hispanic or Latino; population of one race; Native Hawaiian and Other Pacific Islander alone	Total population: not Hispanic or Latino; population of one race; some other race alone, other than white	Total population : not Hispanic or Latino; population of two or more races	Total population : minority	Percent minority
209.03	3,000	413	49	374	36	5	3	43	923	31%
210.00	3,203	980	23	17	12	1	1	24	1,058	33%
Source: U.S. Census Bureau, 2000.										

As shown in **Table 3.6-10**, of the five Census tracts in the vicinity of the Barstow site, Census Tract 94 has a minority population that is equal to roughly 70 percent of the total population; Census Tract 95 has a minority population that is equal to roughly 53 percent of the total population; and Census Tract 120 has a minority population that is equal to roughly 55 percent of the total population. Minority populations in these three Census tracts are above the 50 percent threshold, and therefore are considered minority communities as defined above.

Census Tract 94 is located along the northern portion of Barstow and the Mojave River channel, and to the northeast of the Barstow site. About half of the area is located within the Barstow city limits, and is characterized by predominantly urban areas with some rural and open space area. The total population of the Census tract is 3,040 people, of which 2,140 are considered minorities. Of the minority population 73 percent are Hispanic and Latino, 17 percent are Black or African American, and the remaining 10 percent include the other considered minority populations.

Census Tract 95 is located in the center portion of the Barstow, and to the northeast of the Barstow site. The entire area is located within the Barstow city limits, and is characterized by an urban area. The total population in the Census tract is 6,819 people, of which 3,642 are considered minorities. Of the minority population 69 percent are Hispanic and Latino, 18 percent are Black or African American, and the remaining 13 percent include those that are categorized as “Other.”

Census Tract 120 is located along the southern portion of Barstow, and to the east of the Barstow site. About half of the area is located within the Barstow city limits, and is characterized by predominantly urban areas with some rural and open space area. The total population in the Census tract is 11,690 people, of which 6,481 are considered minorities. Of the minority population 58 percent are Hispanic and Latino, 23 percent are Black or African American, 7 percent are Asian, 7 percent are two or more races, and the remaining 5 percent include those that are categorized as “Other.”

The total minority population in Census Tract 119 is 33 percent of the total population, and in Census Tract 118, which contains the Barstow site, is 41 percent of the total population. The minority population in these Census tracts is below the 50 percent threshold, and therefore is not considered a minority community as defined above.

As shown in **Table 3.6-11**, the total minority population of each of the two Census tracts that cover the Los Coyotes site area constitutes slightly greater than 30 percent of overall population. Although the minority population in the Los Coyotes Site area is below the 50 percent threshold, Alternatives C and D would be constructed on Reservation land currently occupied by Tribal members. Therefore, though analysis of Census tract demographics as a whole does not reflect existence of a minority or low-income community, to ensure a conservative analysis the Los Coyotes Band is considered to be a minority and low-income community within the project area under Alternatives C and D (**Table 3.6-9**).

Income

Census 2000 data represents the most current household income data available by Census tract. Income levels reported in Census 2000 represent wages earned in 1999. The use of older income data is expected to result in a conservative estimate of income, given that income levels tend to rise over the years due to inflation. **Tables 3.6-12** and **3.6-13** display the median household income and poverty income limit for each identified Barstow site and Los Coyotes site Census tract. A low-income community is defined as a Census tract where the median household income falls below the poverty limit.

TABLE 3.6-12
HOUSEHOLD INCOME – BARSTOW SITE AND ADJACENT CENSUS TRACTS

Census Tract	Median Household Income (1999)	Average Household Size	Poverty Threshold
City of Barstow	$35,069	2.7	$13,290
San Bernardino County	$42,066	3.2	$13,290
94	$15,922	2.5	$13,290
95	$35,475	2.7	$13,290
118	$44,017	2.9	$13,290
119	$39,637	2.8	$13,290
120	$39,773	2.8	$13,290
Source: U.S. Census Bureau, 2000.			

TABLE 3.6-13
HOUSEHOLD INCOME – LOS COYOTES SITE AND ADJACENT CENSUS TRACTS

Census Tract	Median Household Income (1999)	Average Household Size	Poverty Threshold
209.03	$32,321	2.4	$10,869
210.00	$35,685	2.2	$10,869
Source: U.S. Census Bureau, 2000.			

As shown in **Table 3.6-12**, the 1999 median household income of each Census tract surveyed in the vicinity of the Barstow site was greater than the poverty threshold. The poverty threshold for each Census tract was determined from the average household size of the Census tract. The poverty threshold assumes average household size is conservatively rounded up to the nearest person (U.S. Census Bureau,

2003b). Since the income level of Census Tract 94 is $2,632 above the poverty threshold, Census Tract 94 is not considered a low-income community. None of the identified Census tracts have a median household income less than the determined poverty thresholds; therefore, these no low-income communities have been identified in the vicinity of the Barstow site.

Similarly, as shown in **Table 3.6-13**, the 1999 median household income of each Census tract surveyed in the vicinity of the Los Coyotes site was greater than the poverty threshold. Therefore, no low-income communities have been identified in the vicinity of the Los Coyotes site.

Gaming Market

Barstow Site

Development of a casino at the Barstow site would generate revenues, some of which would be diverted from competing gaming facilities. The diversion of revenue from Tribe owned gaming facilities could potentially result in an impact to the owning Tribes of the competing gaming facilities. To determine the potential impacts to Tribes as a result of competition effects, the gaming market for the Barstow site is discussed below. In **Section 4.6** the sources of revenue for a casino at the Barstow site are discussed and any disproportionate impacts to tribes are identified as required by *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (described under the Regulatory Context for Environmental Justice impacts above). It should be noted, that to assess the gaming market and sources of revenue, non-Tribal owned gaming facilities are also considered in the analysis.

The market for a casino at the Barstow site is unique because of the regional population distribution. The potential market for the Barstow site can be divided into two major sources: close-radius residents and long-distance travelers. The close-radius market consists of individuals who reside in areas where Barstow will either be the closest casino or one of the closer casinos. The long-distance market consists of vehicles on Interstate 15 traveling to Las Vegas, as well as travelers that fork onto Interstate 40 east of Barstow going towards Arizona. The primary market opportunity for the Barstow site is the large number of travelers that currently pass through Barstow on I-15 each year.

Table 3.6-14 lists casinos identified within the competitive gaming market of the Barstow site, as described above. The market for the Barstow site includes Primm on the Nevada/California border, California Native American casinos in vicinity of the Barstow site, and casinos on the Arizona/Nevada border near Needles. The nearest gaming facility to the Barstow site is the San Manuel Indian Bingo and Casino located approximately 50 miles southwest. The furthest casino considered within the Barstow site gaming market is the Havasu Landing Casino located approximately 185 miles east

San Manuel Indian Bingo & Casino

The San Manuel Indian Bingo and Casino is located in Highland. This facility consists of 2,000 slot machines, 100 game tables, a 2,500-seat bingo hall, and seven restaurants and bars. The estimated travel time by vehicle from the Barstow site is 72 minutes.

TABLE 3.6-14
BARSTOW SITE LOCAL MARKET CASINOS

Casino Name	Owner	Location	Distance (miles)	Casino Status
San Manuel Indian Bingo & Casino	San Manuel Band of Mission Indians	Highland, CA	50	Open
Morongo Casino Resort Spa	Morongo Band of Mission Indians	Cabazon, CA	100	Open
Whiskey Pete's	Herbst Gaming [1]	Primm, NV	119	Open
Primm Valley Casino Hotel	Herbst Gaming [1]	Primm, NV	119	Open
Buffalo Bill's Resort & Casino	Herbst Gaming [1]	Primm, NV	119	Open
Havasu Landing Casino[2]	Chemehuevi Indian Tribe	Havasu Lake, CA	185	Open

Notes: [1] Owned by a private company rather than Native American Tribe.
[2] Included in the analysis because of its location off of Interstate 40. The proposed casino at the Barstow location has the potential to capture drive-by patrons on Interstate 40, which could result in competitive effects to this facility.
Source: AES, 2010.

Morongo Casino Resort Spa

The Morongo Casino Resort Spa is located in Cabazon, Riverside County, towards Palm Springs. A $250 million expansion was completed at the facility in 2004 providing a 27 story four-star hotel, luxury spa and 12,000 square feet of ballroom and meeting space. The facility consists of a 148,000 square foot casino with 2,000 slot machines, 100 game tables, and a 600-seat bingo hall, and ten restaurants and bars. The hotel consists of 272-rooms including 6 villas and 32 suites. The estimated travel time by vehicle from the Barstow site is 99 minutes.

Primm, Nevada

Whiskey Pete's Resort and Casino consists of a 36,400 square foot casino with 1,020 slot machines, 31 gaming tables, and 3 restaurants and bars, as well as a hotel with 777-rooms and 4 suites. Primm Valley Resort and Casino consists of a 46,100 square foot casino with 1,040 slot machines, 38 gaming tables, and 6 restaurants and bars, as well as, a hotel with 624-rooms. Buffalo Bill's Resort and Casino consists of a 46,000 square foot casino with 1,240 slot machines, 38 gaming tables, and 8 restaurants and bars, as well as a hotel with 1,242-rooms and 15 suites. In 2002, the combined realized estimated gross revenues from the three Primm properties were approximately $209 million. The estimated travel time by vehicle from the Barstow site is 104 minutes.

Havasu Landing Casino

The Havasu Landing Casino consists of a 6,900 square foot casino with 230 slots, 5 gaming tables, and one restaurant. The estimated travel time by vehicle from the Barstow site is 194 minutes.

Los Coyotes Site

The competitive gaming market for a casino at the Los Coyotes site is considered to consist of casinos in proximity to the Los Coyotes site in San Diego County, since patrons could choose from several casinos throughout the County. **Table 3.6-15** lists casinos located in the competitive gaming market of the Los

Coyotes site. Eight casinos were identified in the Los Coyotes market. The nearest gaming facilities to the Los Coyotes site are the Santa Ysabel Casino located approximately 11 miles southwest, the Cahuilla Creek Casino located approximately 25 miles to the north, and Harrah's Rincon Casino and Resort and Valley View Casino, which are both located 25 miles to the west. The next closest gaming facilities are the Barona Casino, Viejas Casino & Turf Club, and Sycuan Casino located approximately 30 miles, 30 miles, and 35 miles southwest, respectively. The Pala Casino and Pechanga Entertainment Center are located 32 miles and 35 miles to the northwest, respectively. Finally, the Golden Acorn facility is located 40 miles to the south.

TABLE 3.6-15
LOS COYOTES SITE LOCAL MARKET TRIBAL CASINOS

Casino Name	Owning Tribe	Location	Distance (miles)	Casino Status
Barona Valley Ranch Resort and Casino	Barona Band of Mission Indians	Lakeside	30	Open
Cahuilla Creek Casino	Cahuilla Band of Indians	Anza	25	Open
Golden Acorn	Campo Band of Kumeyaay Indians	Campo	40	Open
Harrah's Rincon Casino and Resort	Rincon Band of Mission Indians	Valley Center	25	Open
Pala Casino	Pala Band of Mission Indians	Pala	32	Open
Pechanga Resort and Casino	Pechanga Band of Luiseno Indians	Temecula	35	Open
Santa Ysabel Casino	Santa Ysabel Band of Diegueño Indians	Santa Ysabel	11	Open
Sycuan Casino	Sycuan Band of the Kumeyaay Nation	El Cajon	35	Open
Valley View Casino	San Pasqual Band of Mission Indians	Valley Center	25	Open
Viejas Casino & Turf Club	Viejas Band of the Kumeyaay Indian Nation	Alpine	30	Open
Source: AES, 2010.				

Viejas Casino & Turf Club

The Viejas Casino and Turf Club recently underwent an expansion. The facility includes a gaming area with approximately 2,250 slot machines, 80 table games, a 750-seat bingo pavilion, and a 150-seat off-track betting facility. In addition, the facility includes entertainment and shopping facilities, as well as six restaurants. Access ramps to Interstate 8 are located just south of the facility.

Pechanga Resort and Casino

The Pechanga Resort and Casino has a 188,000 square-foot gaming floor with 2,000 slot and video machines and 160 table games. The facility also has several dining establishments, including eight restaurants and a five-unit food court, as well as an entertainment area that hosts concerts and sporting events and a 522-room hotel. It is accessible from State Highway 79 in Temecula, California.

Barona Valley Ranch Resort and Casino

The Barona Valley Ranch Resort and Casino is a casino/resort complex with an eight-story 397-room hotel and a golf course. The casino includes a gaming area that is open 24 hours a day with 2,000 slot machines, 70 table games, a 15-table poker room, and a 136-seat off-track betting area. In addition, the facility includes four restaurants and a four-unit food court. The facility is accessible from Route 67 along Wildcat Canyon Road.

Pala Casino

The Pala Casino includes a gaming area with 2,250 slot machines and 87 table games. In addition, the facility includes a 507-room hotel, eight restaurants, a 2,000 seat outdoor theater, and a 30,000 square foot convention center. It is accessible from State Highway 76.

Harrah's Rincon Casino and Resort

The Harrah's Rincon Casino and Resort includes a gaming area with 1,600 slot machines, 51 table games, and a 12-table poker room. In addition, the facility includes a 21-story hotel tower with 653 rooms, eight restaurants, and an entertainment complex for concerts. Regional access to the facility is from State Highway 76 and Interstate 15.

Cahuilla Creek Casino

The Cahuilla Creek Casino is a relatively small facility that is open 24 hours a day and consists of a gaming area with 250 slot machines and three blackjack tables, a café, and a nightclub. It is remotely located along State Highway 371.

Valley View Casino

The Valley View Casino has a gaming area with 1,260 slot machines and 10 table games. In addition, the facility includes two restaurants, a bar, and a six-story parking structure. The facility is in the process of expanding, to include five new dining areas and expanded gaming and entertainment space. The facility is accessible from County Highway S6 in Valley Center, California near Lake Wohlford Road.

Santa Ysabel Casino

The Santa Ysabel Casino includes a 35,000 square foot gaming area with 349 slot machines and seven table games. The property has two restaurants. The facility is located on Highway 79 in North San Diego County near Lake Henshaw between the towns of Santa Ysabel and Warner Springs.

3.7 TRANSPORTATION/CIRCULATION

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of transportation and circulation contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0.**

3.7.1 BARSTOW SITE

The following information regarding traffic and circulation in the vicinity of the Barstow site is summarized from the Los Coyotes Casino Barstow Site Traffic Impact Analysis (TIA), provided as **Appendix H** of the Draft EIS/TEIR and the Supplementary Traffic Information Memorandum provided as **Appendix Q** of the Final EIS/TEIR. Due to the voluminous nature of the TIA appendices, they were not included in the hardcopies of the Draft EIS/TEIR but are available upon request. The TIA appendices can be viewed at: http://www.loscoyoteseis.com/documents/draft_eis-teir/report.htm.

Existing Circulation Network

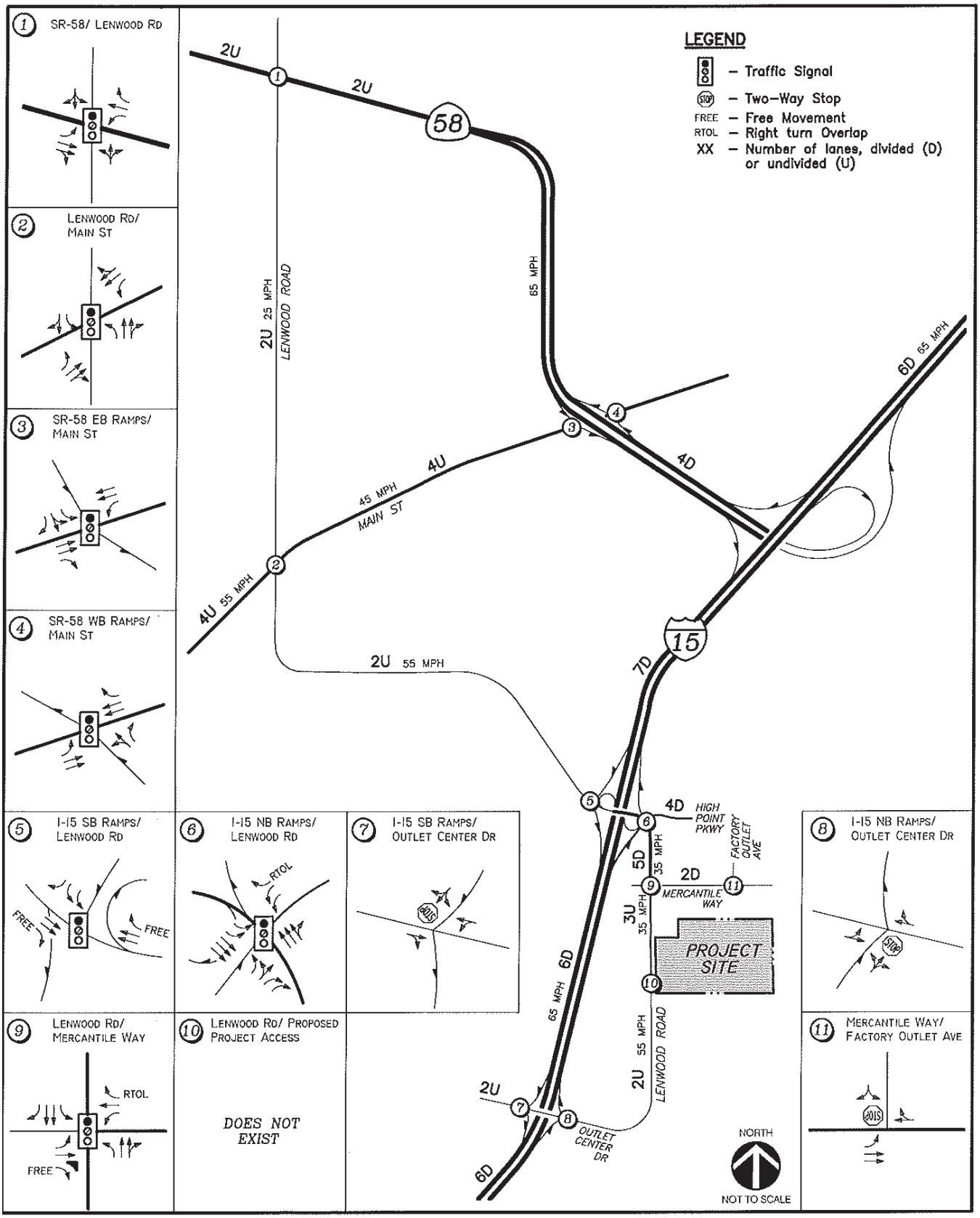
The Barstow site is located east of Lenwood Road, just south of Mercantile Way in the City of Barstow (City). Regional access to the Barstow site is provided by Interstate 15 (I-15) and State Route 58 (SR-58). Various roadways in the vicinity of the site provide local access. The east-west roadways that provide access to the site include Main Street, Mercantile Way, and Outlet Center Drive. North-south roadways that provide local access include Lenwood Road, High Point Parkway, and SR-58. **Figure 3.7-1** shows the existing transportation network in the vicinity of the Barstow site, including lane geometry and traffic controls. The following is a description of the roadway facilities and freeways in the project area.

Interstate 15

This north-south oriented interstate freeway is six-lane divided to seven-lane divided and classified as an Existing Freeway in the City's General Plan Circulation Element (Circulation Element). I-15 provides regional access between areas in southern California, including San Bernardino, Los Angeles, and San Diego counties, and areas to the northeast, including Las Vegas, Nevada, and Utah. The freeway traverses east-west through central Barstow. It currently carries approximately 57,000 to 73,000 vehicles per day in the study area.

State Route 58

This north-south and east-west oriented State highway is two lane undivided to four lane divided and classified as a Proposed Freeway in the Circulation Element. The eastern terminus of SR-58 is located at I-15 to the north of Barstow. SR-58 provides regional access westerly to Bakersfield and northern California cities. Its existing alignment traverses along the northerly portion of the City. It currently carries approximately 11,400 to 12,000 vehicles per day in the study area.



SOURCE: Linscott Law & Greenspan Engineers, 5/21/2009; AES, 2011

Figure 3.7-1

Barstow Site Existing Transportation Network

Main Street

This east-west roadway is four lane undivided and classified as a Major Highway in the Circulation Element. Main Street is the key east-west arterial through the City. It currently carries approximately 3,400 to 8,200 vehicles per day in the study area.

High Point Parkway

This east-west roadway is four lane divided and classified as a Proposed Major Highway in the Circulation Element. It currently carries approximately 4,700 vehicles per day in the study area.

Mercantile Way

This east-west roadway is two lane undivided and classified as a Major Highway in the Circulation Element. It currently carries approximately 1,400 vehicles per day in the study area.

Outlet Center Drive

This east-west roadway is two lane undivided and not classified in the Circulation Element. Outlet Center Drive provides secondary access to Lenwood Road and the I-15 freeway interchange commercial area. It currently carries approximately 800 vehicles per day in the study area.

Lenwood Road

This north-south and east-west roadway is two lane undivided to three lane undivided to four lane divided and classified as a Major Highway in the Circulation Element. Lenwood Road serves the west end of Barstow. It currently carries approximately 120-890 vehicles per day in the study area.

Factory Outlet Avenue

This north-south roadway is unpaved and not classified in the Circulation Element. It currently carries approximately 800 vehicles per day in the study area.

Transit, Bicycle and Pedestrian Facilities

Public transportation is available in the form of fixed route and Dial-A-Ride service operating six days per week by the Barstow Area Transit. There are currently three primary routes that provide service to all of the major traffic generators/attractions in the City. All routes currently begin and end at the Harvey House/Transit center and operate at one-hour headways, with each route leaving at the top of the hour between 7:00 a.m. and 6 p.m. Separate facilities for bicycles or equestrian users have not been provided within the present circulation system for the City. Bicycles utilize public roadways along with other traffic. Lenwood Road east of the I-15 Freeway and Main Street are currently part of the existing city-wide bicycle plan.

Analysis Methodologies

Operating conditions experienced by drivers are described in terms of Level of Service (LOS). This term is a qualitative measure that includes factors such as speed, travel time, delay, freedom to maneuver, and

driving comfort and convenience. LOS is represented as letters ranging from A to F, whereby LOS A represents the best traffic flow driving conditions and LOS F represents the worst traffic flow driving conditions. The operating conditions of signalized and un-signalized intersections are quantified based on average control delay per vehicle per second methodology in the *2000 Highway Capacity Manual*, while roadway segments use volume-to-capacity ratios. **Table 3.7-1** relates the operational characteristics associated with each LOS category for both signalized and un-signalized intersections.

TABLE 3.7-1
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Expected Delay	Average Total Delay Per Vehicle (Seconds)	
		Signalized	Un-signalized
A	Progression is extremely favorable. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.	35.01 to 55.00	25.01 to 35.00
E	The limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

Source: Transportation Research Board, 2000.

Roadway and freeway capacity is generally defined as the number of vehicles that can be reasonably expected to pass over a given section of road in a given time period. **Table 3.7-2** illustrates the relationship between volume to capacity ratio and LOS.

Study Roadway Segments and Intersections

The identification of the study area was based on estimated traffic volumes on roadways near the project site and through a series of scoping discussions with the City, San Bernardino Association of Governments (SANBAG), and California Department of Transportation (Caltrans) to determine the intersections, roadway segments, and freeway facilities requiring analysis. Study intersections and roadway segments evaluated under existing conditions for the Barstow site are shown in **Figure 3.7-1** and listed below:

Intersections

1. Lenwood Road/SR-58
2. Lenwood Road/Main Street
3. SR-58 East-bound (EB) Ramps/Main Street
4. SR-58 West-bound (WB) Ramps/Main Street
5. I-15 Freeway SB Ramps/Lenwood Road
6. I-15 Freeway SB Ramps/Outlet Center Drive
7. I-15 Freeway NB Ramps/Lenwood Road
8. I-15 Freeway NB Ramps/Outlet Center Drive
9. Lenwood Road/Mercantile Way
10. Lenwood Road/Project Access
11. Factory Outlet Avenue/Mercantile Way

TABLE 3.7-2
ROADWAY AND FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

LOS	Daily Roadway Capacities			Freeway V/C Ratio	Description of Travel Conditions
	2 Lns	4 Lns	6 Lns		
A	7,000	15,000	25,000	< 0.41	No physical restriction on operation speeds
B	8,000	18,000	28,000	0.42-0.62	Stable flow with few restrictions on speed and lane changing.
C	10,000	22,000	32,000	0.63-0.80	Stable flow with more restrictions on speed and lane changing.
D	12,000	26,000	35,000	0.81-0.92	Approaching unstable flow, little freedom to maneuver and short periods of heavy restrictions on flow.
E	14,000	28,000	38,000	0.93-1.00	Unstable flow, low operating speeds and some momentary stoppages
F	14,000	28,000	38,000	1.01-1.25	Forced flow operations at low speeds where the highway acts as a storage area and there are many stoppages.

V/C = Volume to Capacity; Lns = Lanes
Source: LLG, 2010

Roadway Segments

1. Lenwood Road - I-15 NB Ramps to Mercantile Way
2. Lenwood Road - Mercantile Way to Project Access
3. Lenwood Road - Project Access to Outlet Center Drive
4. Outlet Center Road - Lenwood Road to I-15 NB Ramps

Freeway Segments

I-15 Freeway Southbound:

- L Street to Lenwood Road
- Outlet Center Drive to Hodge Road

I-15 Freeway Northbound:

- L Street to Lenwood Road
- Outlet Center Drive to Hodge Road

Data Collection

Existing traffic volumes counts were performed for mid-day and PM weekday and Saturday peak hours by Linscott, Law & Greenspan (LLG) in January 2010 (**Appendix H** of the Draft EIS/TEIR). Sunday PM peak hour traffic counts were performed by LLG on October 24, 2011 and are provided in **Appendix Q** of the Final EIS/TEIR. Truck traffic was segregated from passenger vehicle volumes and were converted to passenger car equivalent (PCE) using conversion factors presented in the 2010 Los Coyotes Casino Barstow Site TIA (**Appendix H** of the Draft EIS/TEIR)

Existing Intersection Performance

Table 3.7-3 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections. It was determined that weekday and Saturday presents a worst-case scenario for intersection operation. As shown in the table, each of the study intersections operates at an acceptable LOS of D or better under existing conditions. The existing weekday and Saturday peak hour turning volumes at each of the study intersections are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 3.7-3
BARSTOW EXISTING INTERSECTION LEVEL OF SERVICE

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	9.8	A	7.6	A	7.4	A	7.9	A
2. Lenwood Rd./Main St.	TS	31.2	C	28.3	C	28.7	C	27.9	C
3. Main St./SR-58 EB Ramps	TS	3.0	A	2.4	A	3.2	A	2.2	A
4. Main St./SR-58 WB Ramps	TS	9.4	A	12.1	B	9.8	A	10.6	B
5. Lenwood Rd./I-15 SB Ramps	TS	10.3	B	10.1	B	10.3	B	9.9	A
6. Lenwood Rd./I-15 NB Ramps	TS	15.4	B	14.4	B	17.6	B	14.0	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	9.6	A	9.8	A	10.9	B	10.3	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	8.9	A	8.6	A	9.2	A	8.8	A
9. Lenwood Rd./Mercantile Way	TS	26.7	C	25.9	C	28.6	C	28.1	C
10. Factory Outlet Ave/Mercantile Way	OWSC	8.5	A	8.5	A	8.5	A	8.5	A

Notes: TS = traffic signal, OWSC = One-Way Stop Controlled
Source: LLG, 2010.

Existing Roadway Segment Performance

Existing volume to capacity ratios and LOS has been calculated for the study area roadway segments and are shown in **Table 3.7-4**. As shown in the table, all of the study roadway segments operate within an acceptable LOS under existing traffic conditions.

Existing Freeway Segment Performance

Existing volume to capacity ratios and LOS has been calculated for the study area freeway segments and are shown in **Table 3.7-5**. As shown in the table, all of the study freeway segments operate within an acceptable LOS under existing traffic conditions.

TABLE 3.7-4
BARSTOW EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Roadway	Segment	Number of Lanes	LOS E Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.32	A
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.11	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.09	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.07	A

Notes: D = divided roadway, U = undivided roadway
V/C = volume to capacity ratio
SOURCE: LLG, 2010.

TABLE 3.7-5
BARSTOW EXISTING FREEWAY SEGMENT LEVEL OF SERVICE

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to Lenwood Road	3	6,900	0.308	0.233	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.283	0.214	B	B
I-15 Southbound						
L Street to Lenwood Road	3	6,900	0.346	0.292	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.318	0.268	B	B

Notes: V/C = volume to capacity ratio
Source: LLG, 2010.

Ramp Diverge Operations

Ramp diverge operations is a measurement of the ability of a vehicle to enter the first lane of a multi-lane roadway. Tables 1, 2, 3, 4, 14, and 15 of **Appendix Q** of the Final EIS/TEIR provide the existing ramp diverge operations at I-15 NB/SB off-ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, existing ramp diverge operations are acceptable.

Intersection Queuing Operations

Tables 5, 6, 7, 8, 16, and 17 of **Appendix Q** of the Final EIS/TEIR provide existing lane queuing lengths at I-15 NB/SB off-ramps to Lenwood Road and at I-15 NB/SB off-ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, there is sufficient capacity to accommodate the existing 50th and 95th percentile queues under existing conditions. The 50th and 95th percentile queue is defined to be the queue length (in vehicles) that has only a 50 percent and 5-percent, respectively, probability of being exceeded during the analysis time period.

3.7.2 LOS COYOTES SITE

The following information regarding the existing transportation network in the vicinity of the Los Coyotes site, including lane geometry and traffic controls is summarized from the Los Coyotes Casino Traffic Impact Analysis (TIA), provided as **Appendix H** of the Draft EIS/TEIR.

Existing Circulation Network

The project site is located in San Diego County. SR-79 provides regional access to the Reservation. Local access to the site is provided by an existing unnamed access road north of Camino San Ignacio Road. Roadways within the study area include SR-79, Stage Road, Camino San Ignacio Road, San Felipe Road, and SR-76. The following is a description of the roadway facilities and state highways in the project area:

SR-79

This north-south and east-west roadway is two-lane undivided to two-lane divided. It currently carries approximately 1,600 to 3,100 vehicles per day in the study area.

SR-76

This north-south roadway is two-lane undivided. It currently carries approximately 1,900 vehicles per day in the study area.

Stage Road

This north-south roadway is two-lane undivided. It currently carries approximately 50 vehicles per day in the study area.

Camino San Ignacio Road

This north-south and east-west roadway is two-lane undivided. It currently carries approximately 500 vehicles per day in the study area.

San Felipe Road

This east-west roadway is two-lane undivided. It currently carries approximately 900 vehicles per day in the study area.

Transit, Bicycle and Pedestrian Facilities

The Los Coyotes study area is not currently served by the San Diego Metropolitan Transit System or any other public transportation system. Designated bikeway facilities do not exist in the vicinity of the Los Coyotes site.

Analysis Methodologies

The analysis methodologies discussed for the Barstow site are the same for the Los Coyotes site. **Table 3.7-1** relates the operational characteristics associated with each level of service category for both signalized and un-signalized intersections, and **Table 3.7-2** illustrates the relationship between roadway capacity and LOS.

Study Intersections and Roadway Segments

The identification of the study area was based on estimated traffic volumes on roadways near the Los Coyotes site. Study intersections and roadway segments evaluated in the traffic study are shown in Kunzman TIA (**Appendix H** of the Draft EIS/TEIR) and listed below:

Intersections

1. SR-79/Stage Road
2. SR-79/Camino San Ignacio Road
3. SR-79/San Felipe Road
4. SR-79/SR-76

Roadway Segments

- Camino San Ignacio Road east of SR-79

Data Collection

Existing traffic volumes were established through weekday and Saturday mid-day and evening peak hour traffic counts obtained by Kunzman Associates in September 2006 (**Appendix H** of the Draft EIS/TEIR). Supplemental traffic data was acquired from the *2005 Traffic Volumes on California State Highways* (Caltrans, 2005).

Existing Intersection Performance

Table 3.7-6 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections. As shown in the table, each of the study intersections operates at an acceptable LOS of D or better under existing conditions. The existing weekday and Saturday peak hour turning volumes are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 3.7-6
LOS COYOTES EXISTING INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control[1]	Peak Hour Delay							
		Weekday				Saturday			
		Mid-Day		Evening		Mid-Day		Evening	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1. SR-79/Stage Road	CSS	8.8	A	8.8	A	9.7	A	9.5	A
2. SR-79/Camino San Ignacio Road	CSS	9.0	A	8.8	A	9.5	A	9.0	A
3. SR-79/San Felipe Road	CSS	9.7	A	9.4	A	10.1	B	9.6	B
4. SR-79/SR-76	CSS	9.7	A	9.7	A	11.2	B	10.5	B

Notes: TS = traffic signal, CSS = cross street stop; V/C = Volume to Capacity.
Source: Kunzman, 2007.

Existing Roadway Segment Performance

The existing volume to capacity ratio and level of service has been calculated for the study area roadway segment and is shown in **Table 3.7-7**. As shown in the table, the study roadway segment operates within an acceptable LOS under existing traffic conditions.

TABLE 3.7-7
LOS COYOTES EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Roadway	Segment	Number of Lanes	LOS D Capacity	V/C	LOS
Camino San Ignacio	South of SR-79	2U	10,900	0.05	A

U = undivided roadway; V/C = volume to capacity ratio
Source: Kunzman, 2007.

3.8 LAND USE

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of land use contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.8.1 BARSTOW SITE

Regional and Local Setting

The City of Barstow (City) has a population of 23,599 people and encompasses approximately 33 square miles (California Department of Finance, 2006). The City is located in the western Mojave Desert approximately halfway between Los Angeles and Las Vegas on Interstate 15. The City is located on a major transportation corridor as Interstates 15 and 40, and State Highways 58 and 247 (also referred to as Barstow Road) converge within the city limits (City of Barstow, 2010).

The Barstow site is located at the outskirts of the City near Interstate 15. To the south are undeveloped and vacant lands. To the east is the Stoddard Valley Off-Highway Vehicle (OHV) area, which comprises 33,500 acres and is under the jurisdiction of the Bureau of Land Management (BLM). The land contains rolling hills, steep mountains, winding sandy washes, and open valleys and is available for all forms of motorized vehicle use (City of Barstow, 1997). Camping is also allowed, as is the use of shotguns during hunting season (BLM, 2006b).

To the north and west, commercially developed areas surround the Interstate-15 and Lenwood Road interchange. The businesses at the interchange include outlet malls, restaurants, and hotels. This commercial area is set apart from the rest of the City by at least 1 mile of undeveloped land. Immediately north of the Barstow site and south of Mercantile Way are several fast food restaurants and a few undeveloped parcels. These restaurants are accessed from Lenwood Road. North of Mercantile Way is the Barstow Outlet Mall, which contains approximately 35 outlet stores and restaurants. The Barstow Outlet Mall contains space for approximately 100 businesses, but is currently 60 to 65 percent vacant. Lenwood Road runs adjacent to the western boundary of the Barstow site. To the west and across Lenwood Road are a hotel and the Tanger Outlet Mall, which includes approximately 40 outlet stores and restaurants.

The Barstow site consists of three undeveloped parcels, APN# 0428-171-66, 0428-171-67, and 0428-171-68, comprising approximately 23.1 acres of land in the southwestern portion of the City. Regional access is provided via Interstate 15. Local access to the Barstow site is provided by Lenwood Road. The topography of the property consists of flat, open terrain. The Barstow site is within the City limits and planning authority resides with the City. The property is not used for hunting, fishing, hiking, timber harvesting, mining, or recreational activities.

Guidance Documents and Zoning

Land use planning and development for the Barstow site is guided by the City of Barstow General Plan Community Development Element, Lenwood Specific Plan, City of Barstow Zoning Ordinance, and the applicable Redevelopment Plan. While local land use policies would not apply to lands taken into federal trust, impacts to the community may occur in terms of a federal project's relation to growth and development visions as described in these guidance documents.

Barstow General Plan

The Barstow Planning Area is the geographical area addressed by the Barstow General Plan (City of Barstow, 1997) and extends beyond the city limits (**Figure 3.8-1**). The Barstow Planning Area encompasses over 208 square miles, and consists of the Corporate Area, Sphere of Influence and Area of Interest. The Barstow site is within the Barstow Corporate Area, which includes incorporated areas of Barstow and is developed according to the General Plan, City Zoning Ordinance, and applicable Specific Plans as discussed below. The site is designated as Visitor-Serving Commercial, which is intended to provide retail and service facilities for persons traveling along nearby highways (City of Barstow, 2009).

The central purpose of the General Plan is "to guide orderly growth and anticipate community changes in a way which promotes the health and safety of residents and visitors" (City of Barstow, 1997). The document contains long-range goals and specific policies for future development of the City. The General Plan contains eight elements, including the Community Development Element and the Recreation and Open Space Element, which are discussed below.

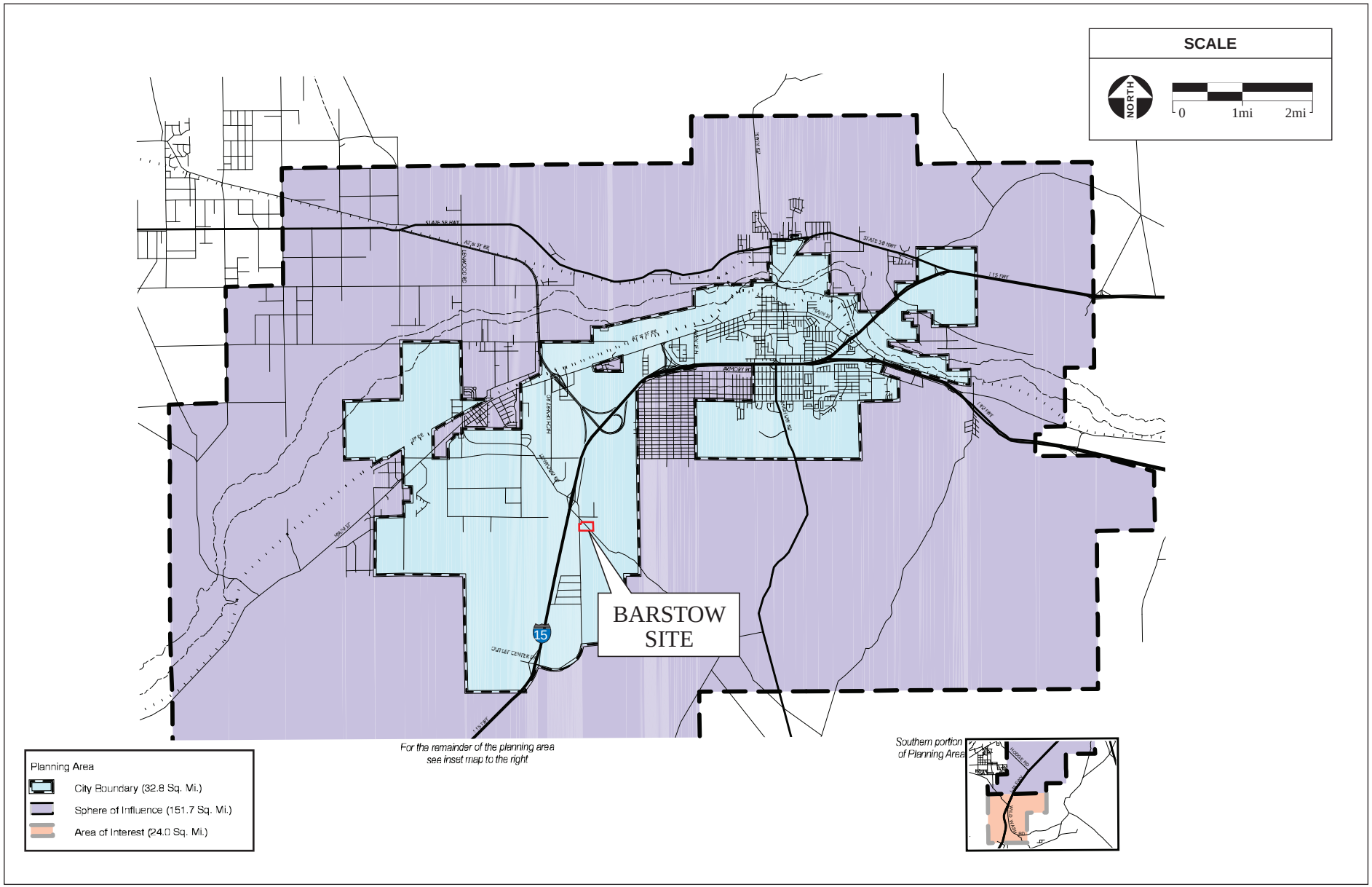
Community Development Element

The Community Development Element addresses the general distribution, location, and intensity of land uses proposed for the City (City of Barstow, 1997). Additionally, this element addresses landscaping and entryways to the City. The western part of the Barstow site is in an area identified for expected growth. The outlet mall and retail development in this area are designated for expansion. Several points around the City are marked as entryways to the community. The Barstow site is near an area marked for proposed signage and design for an entryway concept (along Interstate 15 for northbound travelers, 150 feet before Lenwood Road). The western part of the Barstow site contains a Flood Designated Area overlay. Potential impacts related to flooding are discussed in **Section 4.7.**

Open Space and Recreation Element

The Open Space and Recreation Element addresses the comprehensive and long-range plan for preservation and conservation of open space. According to the element, open space preservation is essential for natural resources, the production of resources, outdoor recreation, and public health and safety. There are many identified recreational resources that are not within the City's direct control, including school districts, parks within the Barstow Park and Recreation District, and BLM areas. The City of Barstow Parks and Recreation Department manages, develops, and maintains parks and recreation facilities within a 510-square mile region.

There are no designated recreation or open space areas on the Barstow site. An area parallel to Mercantile Way, north of the Barstow site, is identified as a recreation corridor and areas just east of the



SOURCE: City of Barstow General Plan, 1996; AES 2011

Figure 3.8-1
City of Barstow Planning Area

site are identified as OHV areas on the Open Space/Recreation Plan Map.

Lenwood Specific Plan

Specific plans combine the effect of general planning and zoning for designated areas. Land use designations and development standards within specific plans tend to be more specialized than those contained in the city general plans or city zoning ordinances. The Barstow site is located within the Lenwood Specific Plan Boundary (City of Barstow, 2000; City of Barstow 2010). The site is designated as Commercial-Recreational/Transition within the Lenwood Specific Plan (**Figure 3.8-2**).

Development standards and criteria are contained in Section 3.0 of the Lenwood Specific Plan. The area contains approximately 2,280 acres of industrial, highway commercial and related uses. Land uses include outlet centers, freight distribution uses, fast-food restaurants, hotels, and truck stops.

The Barstow site is located within a Transitional area, as designated by the Lenwood Specific Plan. Development within Transitional areas requires a conditional use permit to ensure compatibility with the adjacent off-highway vehicle areas and to ensure the property has adequate provisions for water, sewer, electricity, gas, telephone, and storm drainage. Commercial development in a transitional area requires connection to a public sewer system to be financed and constructed by the property owners.

City of Barstow Zoning Ordinance

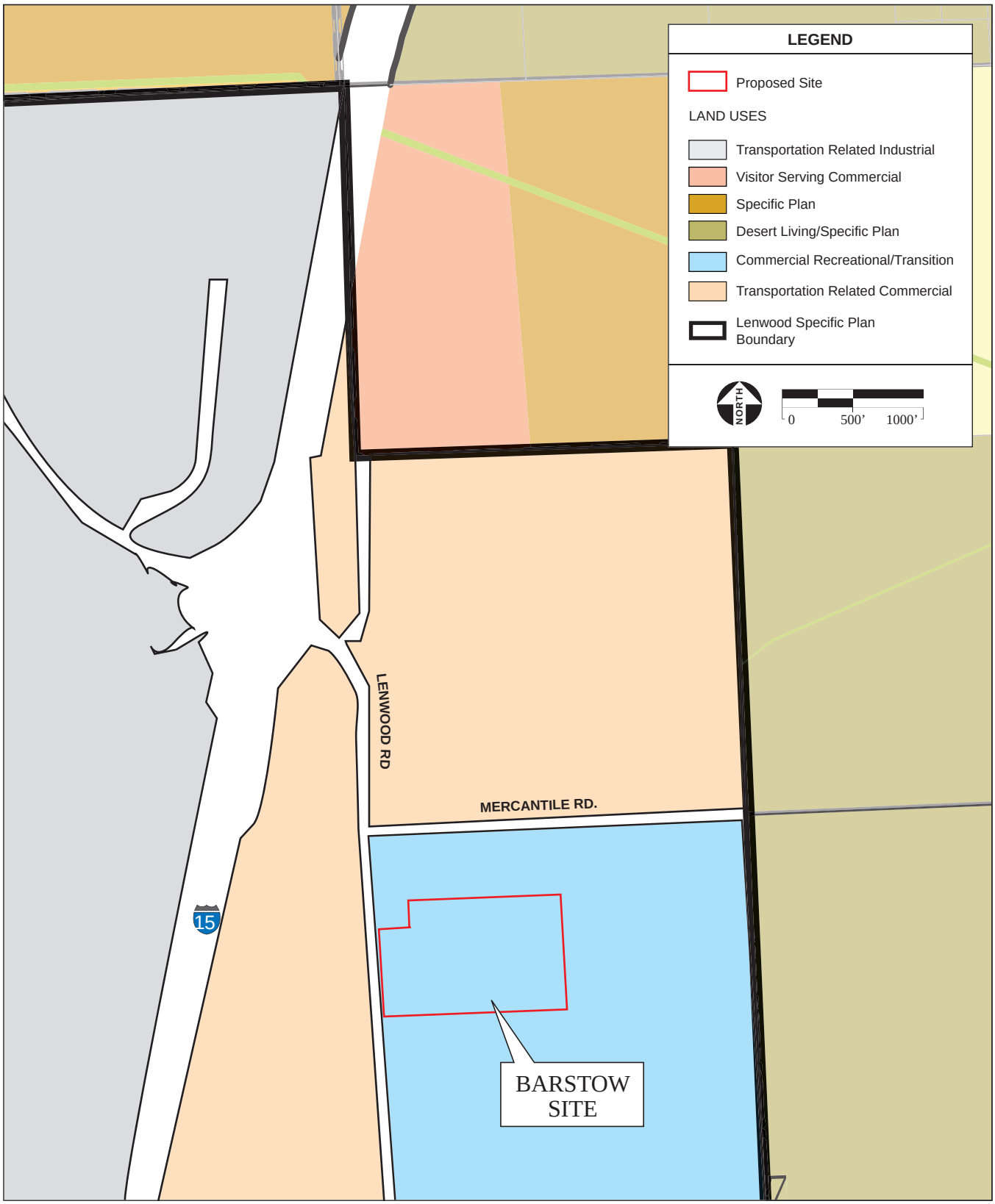
The Barstow site is zoned as Specific Plan on the City of Barstow Zoning Map and shown on **Figure 3.8-3** (City of Barstow, 2000). The City Zoning Ordinance is used to direct growth according to the General Plan. Minimum lot size, setbacks, and maximum heights for areas zoned as Specific Plan are contained within Section 3.0 of the Lenwood Specific Plan.

Redevelopment Plan

The City has two Redevelopment Areas for which plans were developed to address blight as specified in the California Community Redevelopment Law, California Health and Safety Code §33000. The Barstow site is within Redevelopment Project Area 1. The objective of the Redevelopment Plan is to eliminate or alleviate blight conditions including: inadequate/obsolete design, irregularly shaped and inadequately sized lots, declining property values, and economic maladjustment (City of Barstow, 1997). The Redevelopment Plan includes design guidelines related to mechanical screening, design integration of new structures, exterior elevations of new buildings, exterior lighting, and fencing materials.

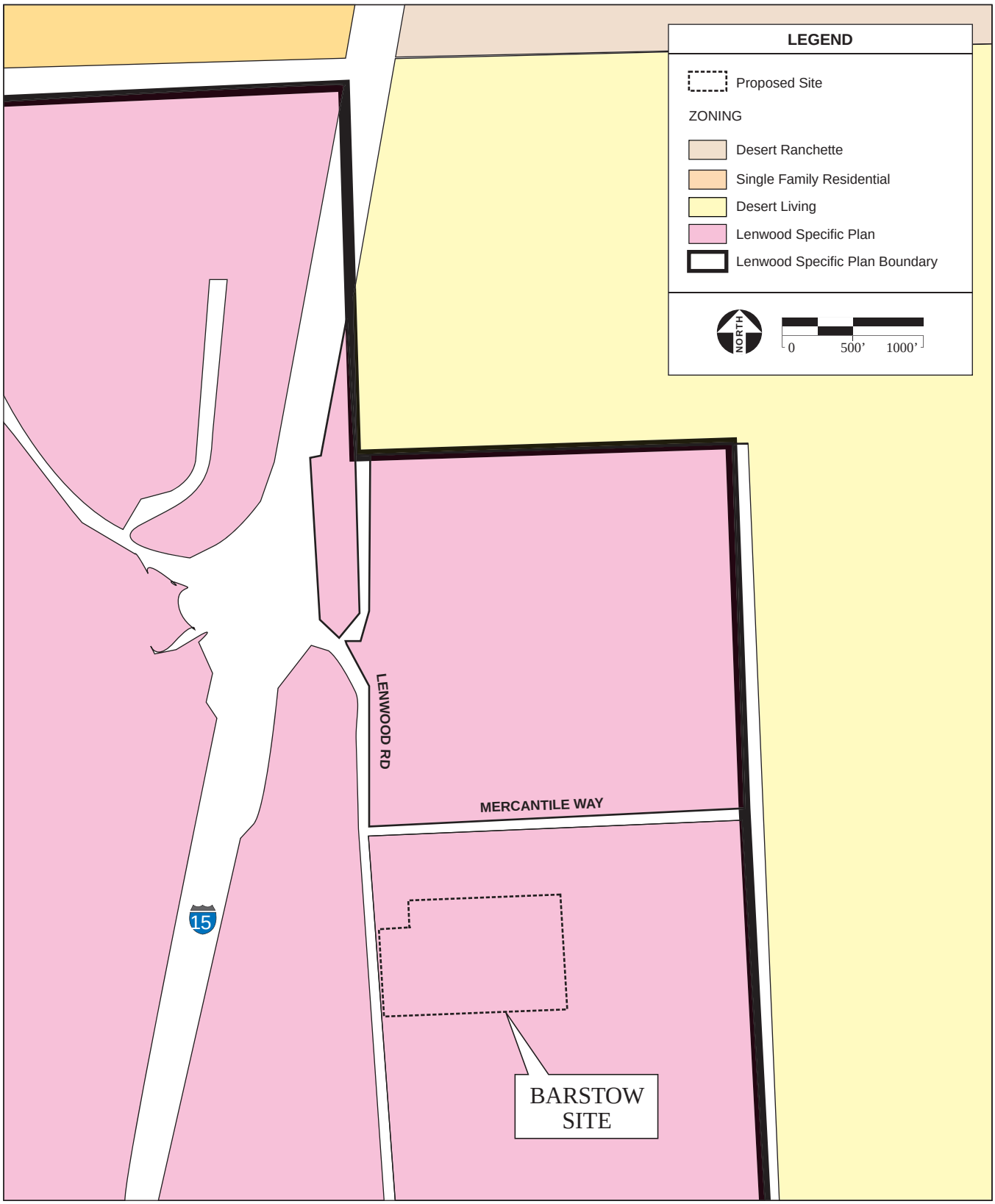
Agriculture

Due to the desert environment and water conservation issues, agriculture production is limited in the Barstow Planning area. Farmland does occur in the floodway, 100-year floodplain, or areas with significant aggregate resources (City of Barstow, 1997). All agriculture in the Barstow Planning Area is irrigated. The California Department of Conservation (CDOC) map of important farmland shows the Barstow site as an area of potential grazing land (CDOC, 2006.) The areas most likely to serve agricultural areas in the Barstow Planning Area are north of the City along the Mojave River. Even this area is not viable for agriculture due to extensive water needs (City of Barstow, 1997). The General Plan



SOURCE: City of Barstow General Plan, June, 1997; City of Barstow, 2006; AES, 2011

Figure 3.8-2
City of Barstow General Plan



SOURCE: City of Barstow Planning Department. 4/28/00; City of Barstow, 2006; AES, 2011

Figure 3.8-3
City of Barstow Site Zoning

does not anticipate continuation of agricultural uses and prioritizes water conservation over loss of agricultural lands (City of Barstow, 1997).

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that federal programs are administered in a matter that is compatible with state and local units of government, and private programs and policies to protect farmland (7 U.S.C. § 4201).

The Natural Resource Conservation Service (NRCS), responsible for the implementation of the FPPA, categorizes farmland in a number of ways. These categories include: prime farmland, farmland of statewide importance, and unique farmland. Prime farmland is considered to have the best possible features to sustain long-term productivity. Farmland of statewide importance includes farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique farmland is characterized by inferior soils and generally needs irrigation depending on climate. The Land Evaluation and Site Assessment is a numeric rating system used by the NRCS to evaluate the relative agricultural importance of farmlands. This evaluation is completed on Form AD 1006, the Farmland Conversion Impact Rating Form. Consultation with the NRCS has shown that the Barstow site does not contain prime farmland, unique farmland, or farmland of statewide or local importance (**Appendix I** of the Draft EIS/TEIR).

Williamson Act

The California Land Conservation Act of 1965, commonly known as the Williamson Act, is designed to preserve farmlands and open space lands by discouraging premature and unnecessary conversion to urban uses. Under the provisions of the Williamson Act, landowners contract with the county to maintain agricultural or open space use of their lands in return for a reduced property tax assessment. The contract is self-renewing and the landowner may notify the county at any time of intent to withdraw the land from its preserve status. Withdrawal involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses. There are no agricultural uses on the Barstow site and there are no existing Williamson Act contracts on the parcels comprising the Barstow site.

3.8.2 LOS COYOTES SITE

Regional and Local Setting

The Los Coyotes Reservation consists of 25,050 acres in northern San Diego County, approximately 6 miles east of the town of Warner Springs. Highway 79 North provides access to the Reservation. The Los Coyotes site consists of 19 acres in the southern portion of the Reservation, just east of San Ysidro Creek (**Figure 2-9**). The Los Coyotes site is undeveloped and does not contain urban features or land uses.

Land to the east of the Los Coyotes Reservation is part of Anza-Borrego State Park. This state park includes hiking trails, off-road vehicle areas, and camping; and is the largest state park in California. Lands to the northwest are part of the Cleveland National Forest and are controlled by the U.S. Forest

Service. The BLM owns the land to the south. To the west are residential, commercial, and recreational uses associated with Warner Springs and the Vista Irrigation District. Residences in this area are typically either single-family residences on lots of one acre or less or spaced rural residential homes on lots of one to ten acres. Some rural-residential housing near Warner Springs has small orchards, fields, and storage structures associated with the property. To the west of the Reservation is Warner Springs Ranch, a resort with 240 cottages and an 18-hole golf course. To the southwest are agricultural uses near Lake Henshaw, which is approximately 7 miles southwest of the Reservation.

Approximately 52 Tribal members live on the 25,050-acre Reservation, of which 2,100 acres are identified as areas of potential development (Marc Anderson, Inc., 2004). The development areas include the San Ignacio area and the San Ysidro Creek area. Development in other areas is limited by steep topography. Lands excluded from consideration for potential development include slopes exceeding 30 percent, severely eroded land, and rock land. Potential development opportunities include Tribal housing, community facilities, a health center, a Tribal office/administration complex, campgrounds, recreational use, agriculture, and a casino. New Tribal housing, if constructed, would be located in the central portion of the Reservation (Marc Anderson, Inc., 2004). The Los Coyotes site is not regularly used for activities such as hunting, fishing, hiking, or timber harvesting.

Guidance Documents and Zoning Ordinance

Because the Los Coyotes site is located on land that is held in trust by the BIA, it is not subject to San Diego County land use jurisdiction. The Reservation is within the North Mountain Planning Community Area and is designated as Tribal Lands on the General Plan Land Use Map (San Diego County, 2004). The Los Coyotes site is not within the range of influence of an airport. Land uses on the Los Coyotes Reservation are governed by the Los Coyotes Tribal Council.

Agriculture

Soils on the Reservation which would most likely serve agricultural uses belong to the Mottsville Series which could produce small grain and forage crops. Mottsville loamy coarse sand occupies 292 acres on the Reservation. Crop yields for this type of soil are contingent upon adequate winter rainfall. Loamy alluvial land occupies 138 acres and could be used for pasture. Crouch course sandy loam occupies 177 acres and may be suitable for apple or pear orchards (Marc Anderson Inc, 2004). The primary limit to cultivation on the Reservation is the steep topography. There are currently no agricultural activities on the Los Coyotes site or the remainder of the Reservation.

Farmland Protection Policy Act

Consultation with the NRCS has shown that the Los Coyotes site contains approximately 17 acres of farmland subject to evaluation under the Farmland Protection Policy Act. The Los Coyotes site contains approximately 2.7 acres of prime and unique farmland and 14.3 acres of farmland of statewide or local importance (**Appendix I** of the Draft EIS/TEIR).

Williamson Act

There are no lands under a Williamson Act contract on the Los Coyotes site.

3.9 PUBLIC SERVICES

This section describes the existing environmental conditions for the proposed Barstow and Los Coyotes sites. The general and site-specific profiles of public services contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Chapter 4.0**.

3.9.1 WATER SUPPLY

Barstow Site

Water is supplied in the vicinity of the Barstow site by Golden State Water Company (GSWC) and private groundwater wells. The Barstow site does not have a connection to GSWC. The nearest line is a 16-inch diameter line that runs along the west side of Lenwood Road and terminates at Mercantile Way, just north of the Barstow site (HydroScience, 2006). The Mojave Water Agency (MWA) aids in the recharge of groundwater due to the overdraft condition of the Mojave Basin. A private groundwater well on the northeast portion of the Barstow site served a former residence and is no longer in use. The well was drilled in 1983 and is approximately 360 feet deep (Merrell Engineering Company, 2003). In 1996, the water level for this well was measured at 280.25 feet below ground surface (EDR, 2006a).

Golden State Water Company

GSWC is an investor-owned public utility and is a subsidiary of American States Water Company. The Barstow site is located in GSWC Region 3, which serves Los Angeles, San Bernardino, Imperial, and Orange counties and contains 21 separate water systems. Within Region 3, the Barstow site is located in the Barstow Customer Service Area, which is a part of the Mountain/Desert District. The Barstow Customer Service Area supplies water to the City of Barstow (City) and surrounding unincorporated areas.

The Barstow Customer Service Area of the GSWC has approximately 8,910 customers. Groundwater is pumped from the Mojave River basin-Centro sub basin, where groundwater is allocated subject to adjudication decisions. The Barstow system consists of 17 active groundwater wells and a 1.0 million gallon reservoir, which provide approximately 600 gallons per minute (gpm) on average. The wells have a current total active capacity of 16,147 acre-feet per year (ac-ft/yr). Actual pumping for these wells averaged 9,556 ac-ft/yr between 2000 and 2004. The GSWC has three licenses from the State Water Resources Control Board that allow GSWC to pump a maximum of 20.0 cubic feet per second (14,479 ac-ft/yr; GSWC, 2005). Subject to the adjudication decision of the Mojave River Basin, the GSWC had a Free Production Allowance of 16,784 ac-ft from 2005 to 2006. The adjudication and Free Production Allowance are discussed in more detail under the MWA below.

Mojave Water Agency

The MWA is responsible for water resource management in areas of the High Desert in San Bernardino County. The boundaries of the agency encompass 4,900 square miles including the Barstow site. Governed by a seven-member elected Board of Directors, the MWA is a state water contractor with

access to the State Water Project via the California Aqueduct and serves as Watermaster, settling overdraft issues in the Mojave Basin (MWA, 2006).

The State Water Project delivers water from the Sierras via the California Aqueduct. One of 29 state water contractors with access to this water source, the MWA connects to the California Aqueduct via the MWA Mojave River Pipeline, which is 76 miles long and consists of 24-inch diameter pipe. The pipeline extends from the California Aqueduct north of Barstow, to just east of Barstow. There are three recharge sites near Barstow: the Hodge, Lenwood, and Daggett/Yermo sites. At these locations, groundwater is recharged to compensate for overdraft conditions. The MWA is entitled to receive an annual allotment of 75,800 ac-ft/yr from the State Water Project (MWA, 2006).

Due to overdraft conditions in the Mojave River Basin, the City and Southern California Water Company filed a lawsuit in 1990 to guarantee water from upstream users. The result of this judgment was the establishment of Free Production Allowances (FPA) for water producers. Water produced in excess of the FPA must be replaced by the producer through payment to the MWA to purchase replacement water or through the transfer of unused FPA from another producer (MWA, 2006).

Los Coyotes Site

Groundwater wells and springs supply water in the vicinity of the Los Coyotes Reservation. Spring discharge ranges from 1 to 20 gpm and is used for both private water sources as well as a community system in the San Ysidro area (Marc Anderson, Inc., 2004). The well with the largest potential yield is the Flowing Artesian Well (10S/4E-13H1), which was pumped in 1940 at a rate of 135 gpm with a resulting draw down of 7 feet (Ballog and Moyle, 1980). While the potential yield of the well may exceed 500 gpm, the safe yield for the well is 62 gpm (Marc Anderson, Inc., 2004).

The Los Coyotes water system includes an upper water system and lower water system. The lower water system supplies tribal residences and tribal facilities in the San Ysidro Creek area by a gravity-fed water system built in the 1940s. The lower water system was rehabilitated by the U.S Department of Agriculture. Water is supplied by a community well. The system includes 8,900 feet of 6-inch diameter water main, 2 pressure-reducing stations, and a 140,000-gallon steel storage tank. The upper water system served the former campground and one residence for non-potable uses and is supplied by three springs. Springs are piped by gravity flow to concrete spring boxes and have an estimated flow of 7 gpm. The upper water system includes a 62,000-gallon storage tank and 6,000 feet of water line (Marc Anderson, Inc., 2004). This water system needs improvements to provide potable water to the campground and/or future development. Current water use is estimated at 2,500 gallons per day (gpd) for domestic use by tribal households on the Reservation. The total annual water used is estimated at 912,500 gallons or 2.8 ac-ft (Marc Anderson, Inc., 2004). Nearby water systems include the Vista Irrigation District (VID), which pumps groundwater southwest of the Reservation. The VID has a well field with 24 wells ranging from 150 to 350 feet in depth. From 2002-2003, approximately 11,130 ac-ft of groundwater were pumped (Marc Anderson, Inc., 2004). There are concerns of depleting groundwater resources due to groundwater pumping in this area.

3.9.2 WASTEWATER SERVICE

Barstow Site

The Barstow site is not currently connected to a public wastewater system. Wastewater service in the vicinity of the Barstow site is provided by the City. The nearest trunk sewer lines are located on Mercantile Way located less than a mile north of the Barstow site. Currently, peak wastewater flow to the City facility is 2.7 million gallons per day (mgd) (Barbour, 2009) The wastewater treatment plant has a treatment capacity of 4.5 mgd of average daily wastewater flow and a peak flow of 7.6 mgd (City of Barstow, 2008). Components of the wastewater treatment system include aeration basins, secondary clarifiers, a chlorine contact chamber, and a chlorine contact lagoon. The wastewater treatment plant provides primary and secondary treatment. Treated effluent is disposed to effluent percolation ponds with a capacity of 3.0 mgd. During peak flows wastewater is treated and then metered out to the effluent percolation ponds so capacity is not exceeded (HydroScience, 2006). Sludge from the secondary treatment system is dried and hauled off-site to a composting facility.

Los Coyotes Site

Individual septic systems are used throughout the Reservation for residential wastewater disposal. Wastewater is disposed to leach fields. Restrooms at campgrounds were closed due to septic system problems (Springer and Anderson, Inc., 1998).

3.9.3 SOLID WASTE SERVICE

California Integrated Waste Management Act

In 1989, the State of California enacted Assembly Bill 939. The California Integrated Waste Management Act, which requires jurisdictions to conduct a solid waste disposal needs assessment that estimates the disposal capacity needed to accommodate projected solid waste generated within the jurisdiction and to identify a minimum of 15 years of permitted disposal capacity. All local jurisdictions are required to divert 50 percent of their total waste stream from landfill disposal.

Barstow Site

The last approved diversion rate for the City was 62 percent in 2006 (CIWMB, 2009). Solid waste and recycling in the City is collected by Burrtec Waste Industries, Inc., which is the authorized franchise hauler under contract with the City. Solid waste is hauled directly to the Barstow Landfill on Barstow Road, located off of Highway 247, approximately 3 miles outside of the city limits. The City has single stream recycling collection for residential and commercial customers. Bins are provided for co-mingled materials accepted in the recycling program. Commercial customers who generate large amounts of cardboard may be provided with a separate container for cardboard. Recyclables are hauled to the Material Recover Facility in Victorville, where they are sorted and processed for recovery. The following materials are accepted for recycling: mixed papers, glass and beverage containers, plastics, cans, and scrap metals (Barbour, 2009).

The Barstow Landfill accepts non-hazardous solid waste including construction/demolition, agriculture, industrial, sludge, and mixed municipal waste. The permitted capacity is 750 tons per day. The permitted

750 tons per day includes 150 tons of liquid from sewage ponds. As of March 2007 the landfill had a remaining capacity of 924,401 cubic yards; the current life expectancy of the landfill is 2012 (CIWMB, 2009). The Environmental Impact Report (EIR) to operate and expand the landfill from a 47-acre site to a 331-acre site was certified in October 2009. After expansion of the landfill, the permitted daily limit will be 1,500 tons per day and the landfill is predicted to last until 2070 (County of San Bernardino, 2006).

Los Coyotes Site

The last board approved diversion rate for the unincorporated County of San Diego was 54 percent in 2006 (CIWMB, 2009). Federal lands, including tribal land, are considered out-of-state and not included in calculation of county diversion rates.

Solid waste at the Reservation is collected by Ramona Disposal. Solid waste is hauled to the Ramona Material Recovery Facility and Transfer Station at 324 Maple Street in Ramona, California. The transfer station has a maximum permitted throughput of 370 tons per day and accepts construction/demolition, green materials, and mixed municipal wastes (CIWMB, 2009). From the transfer station, waste is hauled to the Ramona Landfill, Sycamore Sanitary Landfill, and Otay Landfill. Ramona Landfill receives most of the solid waste that Ramona Disposal collects.

The Ramona Landfill is located at 20630 Pamo Road in Ramona, California, approximately 34 miles southwest of the Los Coyotes site. The maximum permitted capacity is 295 tons per day (CIWMB, 2009). As of 2008, there were 589,000 cubic yards remaining out of a total disposal capacity of 2,200,000 cubic yards (Mohr, 2009). Accepted waste types include agricultural, construction/demolition, mixed municipal, sludge, tires, and wood waste. The estimated closure date of the landfill is 2011(Mohr, 2009).

The Otay Landfill is located at 1700 Maxwell Road in Chula Vista, California, approximately 85 miles southwest of the Los Coyotes site. The landfill is permitted for a maximum permitted capacity of 5,830 tons per day. As of November 30, 2006 the remaining capacity is 33,070,879 cubic yards out of a total disposal capacity of 62,377,974 cubic yards. The landfill has a disposal acreage of 230 acres. Accepted waste types include agricultural, construction/demolition, green materials, mixed municipal, sludge, tires, and other designated wastes. The estimated closure date of the Otay landfill is 2021 (CIWMB, 2009).

The Sycamore Sanitary Landfill is located at 8514 Mast Boulevard in San Diego, California, approximately 63 miles southwest of the Los Coyotes site. The landfill is permitted for a maximum permitted capacity of 3,965 tons per day. As of September 30, 2006 the remaining capacity is 47,388,428 cubic yards out of a total disposal capacity of 48,124,462 cubic yards. The landfill has a disposal acreage of 324 acres. Accepted waste types include agricultural, asbestos, contaminated soils, mixed municipal, sludge, tires, shreds, wood waste, and other designated wastes. The estimated closure date of the Sycamore Sanitary Landfill is 2031(CIWMB, 2009).

3.9.4 ENERGY

Barstow Site

Southern California Edison Company (SCE) provides electricity to approximately 13 million people in California and has a service area of approximately 50,000 square miles. SCE provides electricity to most of San Bernardino County, including the City. Energy sources include fossil fuels, natural gas, hydroelectric power, nuclear energy, and renewable resources. The former residence on the Barstow site was served by SCEC. Overhead 12 kilovolt lines remain along the northern portion of the project site and continue onto the Barstow site short of the eastern boundary (Merrell Engineering Company, 2003).

Southwest Gas Corporation provides natural gas services to the City. Southwest Gas Corporation is an investor-owned utility with 1.7 million customers in Arizona, Nevada, and California. The company had a throughput of 2.4 billion therms in 2007 (Southwest Gas Corporation, 2007). The nearest gas line is a 4-inch diameter line located along the Lenwood Road, adjacent to the eastern boundary of the Barstow site (Merrell Engineering Company, 2003).

Los Coyotes Site

San Diego Gas & Electric supplies electricity to the southwest portion of the Reservation. An overhead electrical line enters from the western portion of the Reservation and runs east, ending at a residence after the community center. One residence relies on solar panels. Tribal residents heat their homes with propane or wood-burning stoves.

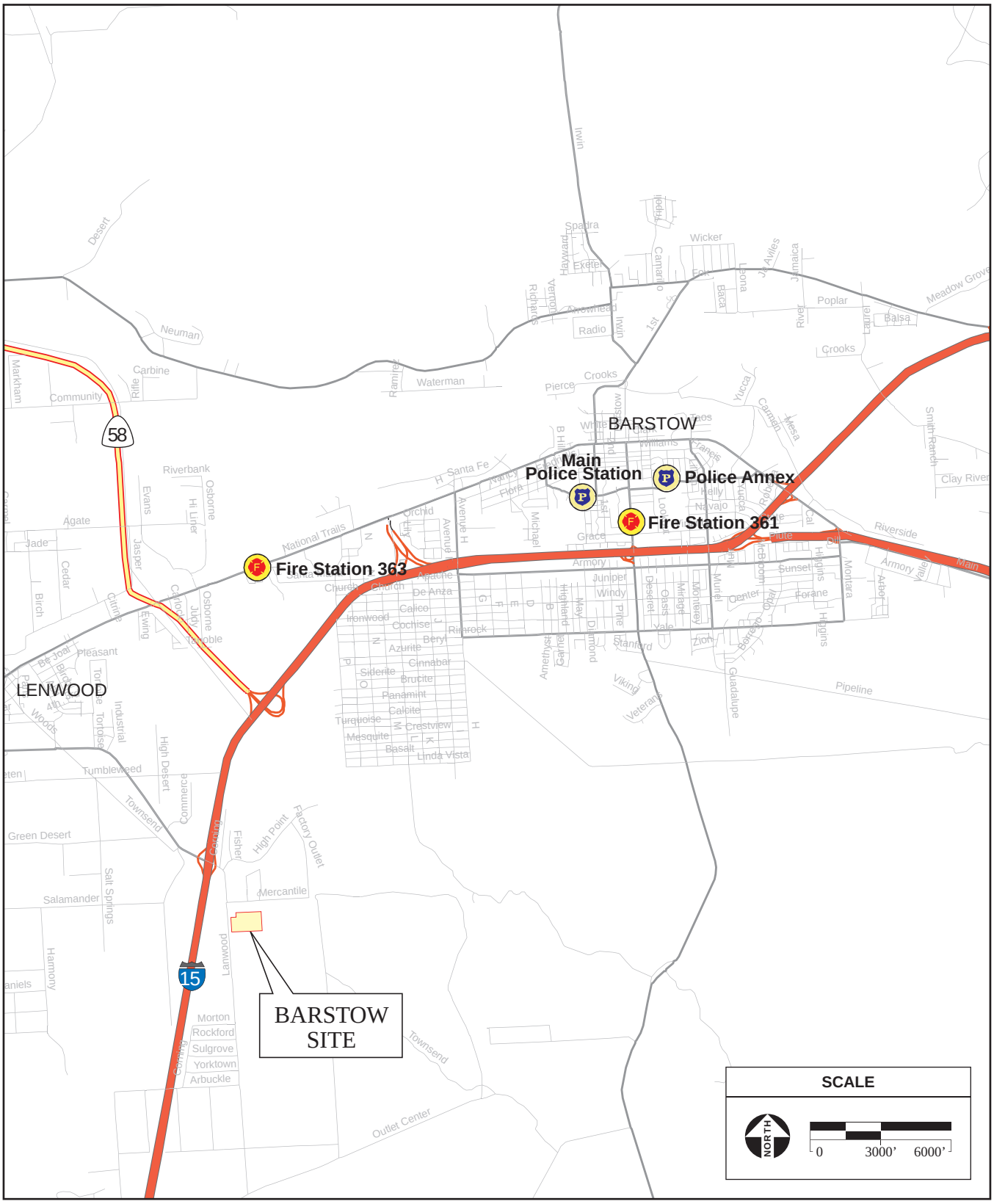
3.9.5 LAW ENFORCEMENT SERVICES

Barstow Site

The Barstow Police Department (Department) provides law enforcement services within the City limits, which encompasses approximately 40 square miles and has a service population of 23,000. The Department is funded through the City budget. The main station is located at 220 East Mountain View Street and houses the patrol, records, dispatch, and evidence functions. An annex located at 500 Melissa Avenue in Barstow houses the investigative and code enforcement bureaus, as well as the crime analysis and training functions (Burns, 2009).

There are 40 sworn staff police officers that are assigned black and white police vehicles. Non-sworn staff are assigned to records, dispatch, code enforcement, and crime analysis. The Department has a 10-member Special Response Team (SRT) which is currently staffed with 8 officers. The Department has 11 patrol vehicles, an evidence/crime scene van, an SRT van, eight unmarked vehicles, one volunteer vehicle, and three code enforcement vehicles (Harpole, 2006).

Calls are assigned on a seniority rotation. Patrol is staffed at one sergeant and four officers per shift. The desired response times are 5 minutes for priority 1 calls and 20 minutes for non-critical calls. Average response times vary from 3-8 minutes (Burns, 2009). Based on traffic and conditions, drive time from the main station to the Barstow site on Interstate 15 may take as long as 15 minutes (Harpole, 2006). The location of police stations in relation to the Barstow site is shown in **Figure 3.9-1**.



SOURCE: ESRI Data, 2006; AES, 2011

Figure 3.9-1
Barstow Public Services

The Barstow Police Department handled 33,683 calls for service (approximately 90 per day) in 2005. In 2005, there were 5,714 police reports filed and 2,368 arrests (Harpole, 2006). A summary of reported crimes for 2007 is provided in **Table 3.9-1**.

TABLE 3.9-1
CITY OF BARSTOW CRIME

Crime	Number of Incidents
Homicide	3
Rape	21
Robbery	72
Assault	241
Burglary	402
Larceny Theft	621
Motor Vehicle Theft	186
Arson	15
Total	***1,561***
Source: FBI, 2007.	

The Sheriff's Department does not provide primary law enforcement services within the City limits but does provide mutual aid assistance on request. The Sheriff's Department has a Desert Rescue Squad, which provides search and rescue services in the High Desert. California Highway Patrol (CHP) is the primary law enforcement for state-owned facilities in the City and traffic enforcement on freeways. CHP also provides mutual aid assistance on request.

Los Coyotes Site

In the unincorporated areas of San Diego County, including on the Reservation, the San Diego Sheriff's Department provides general patrol and law enforcement investigative services. CHP provides traffic services. Under Public Law 280, the State and other local law enforcement agencies have enforcement authority over criminal activities on tribal land. The Sheriff's Department provides primary law enforcement services by contract to several incorporated areas including the cities of Del Mar, Encinitas, Imperial Beach, Lemon Grove, Poway, San Marcos, Santee, Solana Beach, and Vista. The Sheriff's Department provides general law enforcement and detention services in a service area encompassing approximately 4,200 square miles (San Diego County Sheriff's Department, 2009).

The Department includes eight major detention facilities, seven major patrol stations, nine patrol substations, a crime laboratory, a search and rescue team, and support operations. The Sheriff's Department has approximately 4,000 employees, including sworn officers and professional support staff. The Ranchita substation serves the Reservation and is located approximately 6 miles southwest of the Los Coyotes site. The Ranchita substation is responsible for over 1,400 square miles, approximately a third of San Diego County. Staffing includes one sergeant, 8 patrol deputies and accompanying support staff. Service areas include Warner Springs, Ranchita, Borrego Springs, and the Reservation. A police office under the Ranchita substation is located in Borrego Springs (San Diego County Sheriff's Department, 2009).

3.9.6 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

Barstow Site

The Barstow Fire Protection District (District) provides fire prevention, fire safety and paramedic services to the City and surrounding County areas within the District boundaries. The service area is 60 square miles and includes the City and the communities of Lenwood, Grandview, North Barstow, and Barstow Heights (BFPD, 2006). The District also plans to provide service to areas corresponding to City annexations. The District is a Self Governed Special District. The District has Automatic and Mutual Aid Agreements with San Bernardino County Fire, Marine Base Fire (Department Of Defense), Fort Irwin Fire, and with volunteer departments in Daggett, Yermo, and Newberry. The San Bernardino County Fire Department operates the nearest fulltime fire station, approximately 30 minutes from Barstow (Corrao, 2009).

The District operates two stations: Stations 361 and 363. Fire Station 363 is the nearest station to the Barstow site and would provide primary response. Station 363 is located at 2600 West Main Street approximately 4 miles northeast of the Barstow site (**Figure 3.9-1**). Station 363 is equipped with 2 ICS Type-1 fire engines. Fire Station 361 could also provide service to the Barstow site and is located at 861 Barstow Road (**Figure 3.9-1**). Station 361 is equipped with one quint truck with a 75-foot aerial ladder, three ICS "Type-1" fire engines, and one water tender. The District has one paramedic engine per station, staffed with three full-time personnel. The District's target response time is 5 minutes or less to 90 percent of calls, and the current average response is approximately 8 minutes. In 2008, the District responded to 4,200 calls for service (Carrao, 2009). To aid in fire suppression, projects within the District are required to meet minimum fire flows per the 2000 Uniform Fire Code and 2001 California Fire Code (Carrao, 2006).

The District also responds to emergency medical service calls. Ambulance service is provided by Desert Ambulance located at 831 West Main Street. The nearest emergency room is located at Barstow Community Hospital at 555 South 7th Street (**Figure 3.9-1**). Emergency air services are provided by Mercy Air for all emergencies requiring transport to a Trauma Center. The nearest trauma center is Arrowhead Regional Medical Center, located approximately 97 miles away in Colton, California. Should an emergency evolve a heart attack or other heart condition, the victim must be transported to the ST-Elevation Myocardinal Infarction (STEMI) Receiving Center at St. Mary Medical Center in Apple Valley, approximately 23 miles south west of the Barstow site (Carrao, 2009).

Los Coyotes Site

The Los Coyotes site receives fire and emergency medical services from California Department of Forestry and Fire Protection (CDF) and Sunshine Summit Volunteers. The CDF Warner Springs station provides primary service to the Reservation and is located at 31049 Highway 79. The station is approximately 6.1 miles from the Reservation (San Diego County, 2011). The CDF Station is open year round. The Sunshine Summit Volunteers station is located at 35227 Highway 79 in Warner Springs, which is approximately 14.4 miles from the Reservation. The Sunshine Summit Volunteers would provide service if CDF engines were unavailable (Jones, 2006).

The CDF Warner Springs station is staffed year round and is equipped with one Type-II engine and one Type III engine. The station is staffed by two to three personnel 24 hours a day. The station receives 3-5 calls per week on average. The expected response time to the Los Coyotes Reservation is 10 minutes for a fire engine and 20 minutes for an ambulance (Captain Johnson, 2009). The nearest ambulance is stationed near Lake Henshaw. The expected response time of the Sunshine Summit Volunteers is approximately 25.1 minutes (San Diego County, 2011). Mercy Air provides emergency air transport and ambulance services. The nearest hospital is Palomar Medical Center located in Escondido approximately 55 miles from the Los Coyotes site.

CHAPTER 4.0

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4.0 ENVIRONMENTAL CONSEQUENCES

This chapter discusses the environmental effects of the proposed project and alternatives and provides the foundation for comparison of the alternatives presented in **Chapter 2.0**. The potential for adverse environmental effects is assessed with regard to the baseline conditions established in **Chapter 3.0**. The analysis presented in this chapter has been prepared in accordance with Council of Environmental Quality (CEQ) NEPA Regulations (40 CFR §1502.16).

4.1 LAND RESOURCES

This section identifies the direct effects to land resources that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.1**. Cumulative effects are identified in **Section 4.13**. Indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Measures to avoid and, if necessary, mitigate for adverse effects identified in these sections are presented in **Section 5.2**.

Assessment Criteria

Adverse geologic effects would result if structures were to fail or create hazards to adjacent property due to slope instability, effects of earthquakes, or adverse soil conditions (i.e. compressible, expansive or corrosive soils), or if mineral resources were compromised.

4.1.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Topography and Landslides

Construction of Alternative A would require alterations to the topographical characteristics of the Barstow site. The Barstow site is relatively flat (1.5 percent mean slope), and the result of on-site grading would have a minor impact on the site. As discussed in **Subsection 3.1.2**, there is no sloping ground that would be subject to instability or landslides on or adjacent to the Barstow site; therefore, landslides would not occur. Development of Alternative A would have no adverse effects on topographic characteristics.

Soils

Soil Erosion

Construction activities associated with Alternative A could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A discussion of surface water impacts is provided in **Section 4.2**, Water Resources. The measures listed in **Section 5.0** would reduce these potential effects. Due to the relatively flat topography, grading activities would not create unstable slopes on or near the project site.

Stormwater runoff during construction and during operation could potentially be another source of soil erosion. However, in order to comply with the U.S. Environmental Protection Agency's (USEPA) National Pollution Discharge Elimination System (NPDES) program under the Clean Water Act, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared to address water quality impacts associated with construction and operation of the casino. The SWPPP would identify best management practices (BMP's) and the location of construction and operational erosion control features, thereby ensuring that adverse effects resulting from erosion are reduced to insignificant levels. A detailed list of erosion control construction and measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

Expansive soils are not present on the surface of the Barstow site. The expansion rating for near-surface soils on site is low. Development of Alternative A would have no adverse effects related to expansive soils.

Soil Corrosivity

Corrosion is an electrochemical process affecting degradation of metals or metal-containing materials in contact with water. This process is discussed in detail in **Section 3.1**. Sandy soils found on the Barstow site rate high on the resistivity scale, and therefore, are considered the least corrosive. Development of Alternative A would have no adverse effects related to soil corrosivity.

Seismic Hazards

The project site is located within a seismically active region. **Section 3.1** identifies the probability for a seismic event to cause destructive ground acceleration at the Barstow site. According to **Table 3.1-2**, the Barstow site is within a region having a 10 percent chance of exceeding 0.25g acceleration in a seismic event, with a corresponding MMI Intensity Value of VIII. At this level of acceleration, damage would be slight in specially designed structures.

The casino and related facilities would be constructed in accordance with ~~Uniform~~ International Building Code (~~UBC~~IBC) guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. As identified in **Section 5.1**, the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code and to adopt building standards and codes no less stringent than those adopted by the City. Further, the Tribe has agreed to ensure compliance with the City's adopted codes including those pertaining to building standards and to contract with the City to provide planning, building and safety, fire prevention, and public works personnel to review any and all construction plans and inspect construction of all improvements on or off the trust lands. The Barstow site does not fall within an Alquist-Priolo Zone and is therefore not subject to any building restrictions applicable to properties designated as such. Development of Alternative A would have no adverse effects related to seismic hazards.

Liquefaction

Based on the liquefaction analyses in **Section 3.1**, there is no substantial risk of liquefaction in the project area. Development of Alternative A would have no adverse effects related to liquefaction.

Lateral Spreading

Lateral spreading is commonly associated with liquefaction. There is no substantial risk of liquefaction in the project area, lateral spreading is unlikely to occur on the Barstow site. Development of Alternative A would have no adverse effects related to lateral spreading.

Seismically Induced Flooding

The Barstow site is not located downstream from any major dams or reservoirs that could inundate the project site in the event of seismically induced breakage. Development of Alternative A would have no adverse effects related to seismically induced flooding.

Mineral Resources

As there are no known or mapped mineral resources within the Barstow site, construction and operation of Alternative A is not anticipated to impact or be impacted by mineral resources. The alterations in land use on the Barstow site would not result in a loss of economically viable aggregate rock or diminish the extraction of important ores or minerals. Development of Alternative A would have no adverse effects related to mineral resources.

4.1.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Topography and Landslides

Construction of Alternative B would require alterations to the topographical characteristics of the Barstow site similar to those described for Alternative A. As discussed under Alternative A, there is no sloping ground that would be subject to instability or landslides on or adjacent to the Barstow site; therefore, landslides cannot occur. Development of Alternative B would not have an adverse effect on topographic characteristics.

Soils

Soil Erosion

As with Alternative A, construction activities associated with Alternative B could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A detailed list of erosion control measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

As discussed under Alternative A, expansive soils are not present on the surface of the Barstow site. The expansion rating for near-surface soils on-site is low. Development of Alternative B would have no adverse effects related to expansive soils.

Soil Corrosivity

As discussed under Alternative A, the potential for corrosivity is low. Development of Alternative B would have no adverse effects related to soil corrosivity.

Seismicity

As stated under Alternative A, the Barstow site is located within a seismically active region. The casino and related facilities would be constructed in accordance with ~~UBC~~ IBC guidelines and adopted City Codes, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. Construction methods and design would be similar to Alternative A. Development of Alternative B would have no adverse effects related to seismicity.

Liquefaction

As discussed under Alternative A, there is no substantial risk of liquefaction in the project area; therefore, development of Alternative B would have no adverse effects related to liquefaction.

Lateral Spreading

As discussed under Alternative A, lateral spreading is unlikely to occur on the Barstow site; therefore, development of Alternative B would have no adverse effects related to lateral spreading.

Seismically Induced Flooding

As discussed under Alternative A, the Barstow site is not subject to any type of seismically induced flooding; therefore, no adverse effects would occur under Alternative B.

Mineral Resources

Similarly to Alternative A, construction and operation of Alternative B is not anticipated to impact or be impacted by mineral resources. Development of Alternative B would have no adverse effects related to mineral resources.

4.1.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Topography and Landslides

Construction of Alternative C would require alterations to the topographical characteristics of the Los Coyotes site. In general, the Los Coyotes site is flat, but sloped slightly from the northeastern corner to the southwestern corner. Some of the surrounding hills exceed 500 feet amsl; however, the perpendicular orientation of the hills to the project site reduces the likelihood of landslides. Landslides are therefore not

likely to occur. Development of Alternative C would have no adverse effects on topographic characteristics.

Soils

Soil Erosion

As with Alternative A, construction activities associated with Alternative C could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A detailed list of erosion control measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

Expansive soils are not present on the surface of the Los Coyotes site. The expansion rating for near-surface soils on-site is low. Development of Alternative C would have no adverse effects related to expansive soils.

Soil Corrosivity

Due to the soil composition at the Los Coyotes site and its inherently high sand content, the potential for corrosivity is low. Development of Alternative C would have no adverse effects related to soil corrosivity.

Seismicity

The Los Coyotes site is located near three faults, including one that runs through the Los Coyotes Reservation. **Section 3.1** identifies the probability for a seismic event to cause destructive ground acceleration at the Los Coyotes site. According to **Table 3.1-2**, the Los Coyotes site is within a region having a 10 percent chance of exceeding 0.60g acceleration in a seismic event, with a corresponding MMI Intensity Value of X. The casino and related facilities would be constructed in accordance with ~~UBC~~ IBC guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. The Los Coyotes site does not fall within an Alquist-Priolo Zone, and is therefore not subject to any building restrictions applicable to properties designated as such. Development of Alternative C would have minimal adverse effects related to seismic activity and associated hazards.

Liquefaction

Based on the liquefaction analyses in **Section 3.1**, there is no substantial risk of liquefaction in the vicinity of the Los Coyotes site. Development of Alternative C would have no adverse effects related to liquefaction.

Lateral Spreading

Lateral spreading is commonly associated with liquefaction. It is unlikely to occur on the Los Coyotes site. Development of Alternative C would have no adverse effects related to lateral spreading.

Seismically Induced Flooding

The site is not located downstream from any major dams or reservoirs that could inundate the site in the event of seismically induced breakage. Development of Alternative C would have no adverse effects related to seismically induced flooding.

Mineral Resources

The alterations in land use under Alternative C would not result in a loss of economically viable aggregate rock or diminish the extraction of important ores or minerals. Development of Alternative C would have no adverse effects related to mineral resources.

4.1.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Topography and Landslides

As discussed under Alternative C, the Los Coyotes site is generally flat, but sloped slightly from the northeastern corner to the southwestern corner. Adjacent hills perpendicular to the project site can exceed 500 feet amsl. As stated under Alternative C, due to the Los Coyotes site flat topography and orientation to the surrounding hills, landslides are not likely to occur. Development of Alternative D would have no adverse effects on topography and landslides.

Soils

Soil Erosion

As with Alternative A, construction activities associated with Alternative D could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A detailed list of erosion control measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

As discussed under Alternative C, expansive soils are not present on the surface of the Los Coyotes site. The expansion rating for near-surface soils on-site is low. Development of Alternative D would have no adverse effects related to expansive soils.

Soil Corrosivity

As discussed under Alternative C, the potential for corrosivity at the Los Coyotes site is low and no adverse effects would occur from development of Alternative D.

Seismicity

As stated under Alternative C, the Los Coyotes site is located near three faults, including one that runs through the Los Coyotes Reservation. The campground facilities would be constructed in accordance

with ~~UBC~~ IBC guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. As there would be no habitable structures developed under Alternative D, no adverse effects related to seismic activity would occur.

Liquefaction

As discussed under Alternative C, there is no substantial risk of liquefaction in the vicinity of the Los Coyotes site and no adverse effects would occur from development of Alternative D.

Lateral Spreading

As discussed under Alternative C, lateral spreading is unlikely to occur on the Los Coyotes site and no adverse effects would occur from development of Alternative D.

Seismically Induced Flooding

As discussed under Alternative C, the site is not located downstream from any major dams or reservoirs that could inundate the site in the event of seismically induced breakage. Development of Alternative D would have no adverse effects related to seismically induced flooding.

Mineral Resources

As discussed under Alternative C, the alterations in land use on the Los Coyotes site would not result in a loss of economically viable aggregate rock or diminish the extraction of important ores or minerals. Development of Alternative D would have no adverse effects related to mineral resources.

4.1.5 ALTERNATIVE E– NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.2 WATER RESOURCES

This section identifies the direct effects to water resources anticipated to result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.2**. Cumulative effects are identified in **Section 4.13**. Indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Measures to avoid and, if necessary, mitigate for adverse effects are presented in **Section 5.2**.

Assessment Criteria

Adverse effects to surface water resources would result if either construction or operation would substantially alter, impede, or degrade drainage patterns, floodplain management, and/or water quality. Adverse effects to groundwater resources would result if either construction or operation would substantially decrease groundwater levels, reduce or impede groundwater recharge, and/or degrade groundwater quality.

4.2.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Surface Water

Drainage

Although annual precipitation rates are quite low for the project site, short duration peak rainfall intensity in the area may be considerable during summer thunderstorms. Implementation of Alternative A would alter the existing drainage pattern of the site and increase stormwater runoff as a result of increased impervious surfaces. Alternative A would convert approximately 23.1-acres of the vacant parcel into a hotel and casino complex, surface roads, and parking areas, which would result in an increase in stormwater runoff over pre-development rates during 10 and 100-year storm events (Questa, 2007). **Table 4.2-1** summarizes the estimated rainfall and runoff for the development of Alternative A (without detention measures). As discussed in **Subsection 2.2.1**, drainage facilities have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash. The Drainage and Water Quality Analyses (Questa, 2007), included as **Appendix E** of the Draft EIS/TEIR, describe the drainage plan for the project site under Alternative ~~2~~A. Inclusion of these drainage facilities into the project design would avoid potential adverse effects associated with stormwater runoff.

TABLE 4.2-1
ESTIMATED RAINFALL AND RUNOFF FOR ALTERNATIVE A

Storm Frequency	1-hour Precipitation Rates	Pre-Development Runoff Rate	Alternative A Runoff Rate
10-year	0.75 inches	12.5 cfs	81.78 cfs
100-year	1.2 inches	56.25 cfs	133.76 cfs
Source: Questa, 2007.			

Flooding

Federal Executive Order 11988 addresses floodplain management. The order requires the evaluation of federal actions taken in a floodplain. Specifically, the order states that agencies shall first determine whether a proposed action would occur in a floodplain. If an agency proposes to allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplain. If the only practicable alternative action requires siting facilities in a floodplain, the agency shall minimize potential adverse impacts to the floodplain.

As noted in **Subsection 3.2.1**, the western 10.5 acres of the project site are within the 100-year floodplain. This area encompasses the parking areas, access roads, and stormwater retention facilities. Flooding in these areas would reduce access to the site. However, development of Alternative A would not impede the floodway and would result in a no flood risk to proposed structures. Furthermore, fill would not be imported to the site and thus floodplain elevations would not increase. The remainder of the project related development is outside the 100-year floodplain.

Water Quality

Construction Impacts

Construction of Alternative A would result in ground disturbance, which could lead to erosion. Erosion increases sediment discharge to surface waters during storm events, reducing water quality. Construction also has the potential to generate waste materials (e.g., concrete, drywall, metal, and wood from building rubble; and diesel, oil, and grease from heavy equipment and temporary on-site fuel storage) that can become entrained in surface flow and washed into nearby surface waters during storm events. Potential discharges of pollutants to surface waters from construction wastes and fuel spills and leaks would adversely impact off-site drainages.

Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) (33 USC § 1342). NPDES is a national program for regulating and administering permits for discharges, including stormwater, to receiving waters, including man-made drainages. Construction sites disturbing more than five acres must apply for a Phase I NPDES General Construction Permit. The United States Environmental Protection Agency (USEPA) is ultimately charged with regulating discharges to surface waters. In nearly all states, including California, the USEPA has delegated permitting authority to the state water quality management programs; however, the USEPA continues to regulate discharges to waters in Indian country.

During construction, erosion control measures shall be employed in compliance with the Phase I NPDES General Construction Permit for construction activities as noted in **Section 1.4**. A Stormwater Pollution Prevention Plan (SWPPP) will be developed prior to any ground disturbance at the project site and shall include practices to reduce potential surface water contamination during storm events. Implementation of the Best Management Practices (BMPs) incorporated into the SWPPP, as discussed in **Chapter 2.0**, would assure no adverse impacts to surface water resources occur from construction of Alternative A.

Operational Impacts

Operation of Alternative A could result in off-site discharge of stormwater runoff contaminated with automobile contaminants, debris from patrons, and dissolved solids from landscaping. Therefore, the drainage plan incorporated into the project description includes infiltration and oil/water separators to improve stormwater quality prior to retention. As noted above, the drainage plan incorporates basins, landscaping, infiltration areas, and a retention basin. Stormwater would traverse through a series of infiltration areas and basins before entering a detention basin located along the western border of the project site. Stormwater would then be discharged to the Lenwood Wash at pre-existing rates. The drainage plan is designed to treat the first flush of the storm, which would contain the highest concentration of entrained contaminants. Once stormwater flow has reached levels surpassing the retention volume of the project site, water would be considered "clean," similar to roof runoff, as contaminants that were present throughout the site have already been flushed. Alternative A would not result in significant adverse effects to water quality. Overall project design and recommended best management practices (BMPs) presented in **Section 5.2** would further reduce the potential for adverse effects to water quality.

Groundwater

Groundwater Supply

Potable water would be supplied by the available capacity of the Golden State Water Company. Therefore, development of Alternative A would not require the use of on-site groundwater resources. As noted above, a drainage plan has been incorporated into project design and includes stormwater detention areas that would allow percolation into the soil. In order to ensure that the off-site discharge rate would be equal to pre-development rates, the additional stormwater generated from the introduction of impervious surfaces would be detained on-site so that groundwater recharge rates are not affected. No adverse effects would occur to groundwater supply.

Groundwater Quality

Site runoff could impact groundwater quality if contaminants entrained in the stormwater percolate to the groundwater table. With a depth to groundwater of over 230 feet, the stormwater that would have already been filtered through filter strips, landscaped areas, and infiltration areas would be adequately filtered through the process of soil absorption and infiltration prior to reaching groundwater. Through soil absorption, contaminants in the stormwater adhere to the surface of soil particles as the water passes through. Infiltration involves contaminants settling in the tiny spaces created by the shapes of soil components. By the time stormwater reaches the groundwater table, it would be of similar quality to pre-existing conditions. Alternative A would not result in significant adverse effects to groundwater quality. Overall project design and recommended BMPs presented in **Section 5.2** would ensure adverse effects to groundwater quality would not occur.

4.2.2 ALTERNATIVE B – BARSTOW REDUCED CASINO -HOTEL COMPLEX

Surface Water

Drainage

Implementation of Alternative B would alter existing drainage patterns and increase stormwater runoff compared to existing conditions. Alternative B would convert approximately 23.1-acres of vacant land into impervious surfaces such as parking lots and the building footprint. This would result in an increase in stormwater runoff during 10 and 100-year storm events (Questa, 2007). **Table 4.2-2** summarizes the estimated rainfall and runoff rate for Alternative B (without detention measures). As discussed in **Subsection 2.2.2**, drainage provisions have been incorporated into the project description to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash. With the inclusion of the drainage plan into the project design, no impacts associated with stormwater runoff would occur.

TABLE 4.2-2
ESTIMATED RAINFALL AND RUNOFF FOR ALTERNATIVE B

Storm Frequency	1-hour Precipitation	Pre-Development Runoff Rate	Alternative B Runoff Rate
10-years	0.75 inches	12.5 cfs	83.5 cfs
100-years	1.2 inches	56.25 cfs	136.8 cfs
Source: Questa, 2007.			

Flooding

Impacts for Alternative B would be similar to those discussed for Alternative A. Implementation of Alternative B would not place structures in an area that would be prone to flooding nor alter or impede the floodway. As such, no adverse effects associated with flooding would occur.

Water Quality

Construction Impacts

Similar to Alternative A, during construction of Alternative B, potential discharges of pollutants to surface waters from construction wastes and fuel spills and leaks could adversely impact off-site drainages. Due to the reduced excavation and construction schedule required for Alternative B compared to Alternative A, potential for impact from erosion ~~are~~ is significantly reduced. Erosion control measures shall be employed in compliance with the Phase I NPDES General Construction Permit for construction activities as noted in **Section 1.4**. A SWPPP will be developed prior to any ground disturbance at the project site and shall include practices to reduce potential surface water contamination during storm events. Implementation of the Best Management Practices (BMPs) incorporated into the SWPPP, as discussed in **Chapter 2.0** and presented in **Section 5.2**, would ensure adverse effects to surface water resources would not occur from construction of Alternative B.

Operational Impacts

Operation of Alternative B has the potential to discharge stormwater entrained with contaminants from various sources including on-site parking lots. The drainage plan incorporated into the project design of

Alternative B includes BMPs to improve stormwater quality prior to discharge or retention. Alternative B would not result in significant adverse effects to surface water quality. Project design and recommended measures presented in **Section 5.2** would further minimize the potential for adverse effects.

Groundwater

Groundwater Supply

Similar to Alternative A, implementation of Alternative B would meet water demands through connection to Golden State Water Company water supply distribution system. Alternative B would increase ground water recharge by channeling and storing stormwater into on-site detention ponds to increase stormwater infiltration. There would be no adverse impact to the groundwater supply.

Groundwater Quality

The drainage plan for Alternative B includes the same water quality features described for Alternative A. As discussed above, soil absorption and infiltration would further improve stormwater quality prior to convergence with groundwater resources. Therefore, implementation of Alternative B would not result in significant adverse effects to groundwater quality. Project design and recommended BMPs presented in **Section 5.2** would further minimize all identified adverse effects.

4.2.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Surface Water

Drainage

Implementation of Alternative C would alter the existing drainage pattern and increase impervious surfaces on the Los Coyotes site. Annual precipitation rates for the desert area that includes the Los Coyotes Reservation are quite low. However, short duration peak rainfall intensity in the area may be considerable during summer thunderstorms. Construction of Alternative C would convert 11.5 acres (90 percent) of undeveloped land into impervious surfaces for the development of the building footprint, sidewalks and parking areas, and the WWTP and storage tanks. This would result in an increase in stormwater runoff compared to existing conditions (50-year storm) (Questa, 2007). **Table 4.2-3** summarizes the estimated increase in stormwater runoff with implementation of Alternative C. As discussed is **Subsection 2.2.3**, drainage features have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate. With the inclusion of the drainage provisions into the project description, Alternative C would not result in significant adverse effects associated with stormwater runoff.

TABLE 4.2-3
ESTIMATED RAINFALL AND RUNOFF FOR ALTERNATIVE C

Storm Frequency	24-hour Precipitation	Pre-Development Runoff Rate	Alternative C Runoff Rate
50-years	10.0 inches	31 cfs	128 cfs
100-years	11.0 inches	34 cfs	142 cfs
Source: Questa, 2007.			

Flooding

The Los Coyotes site is not located within a floodplain as depicted by Federal Emergency Management Agency (FEMA) flood insurance rate maps. The area is designated Zone D, an undetermined zone. The drainage plan would ensure localized and downstream flooding would not occur as a result of the development of Alternative C. Alternative C would not result in adverse effects associated with flooding.

Water Quality

Under Alternative C, off-site water quality impacts would be similar to Alternative A. The introduction of impervious surfaces increases the potential for entrained contaminants in stormwater runoff. As discussed under Alternative A the implementation of the BMPs incorporated into the SWPPP, as discussed in **Chapter 2.0**, would assure no adverse impacts to surface water resources would occur from construction or operation of Alternative C.

Groundwater

Groundwater Supply

As identified in **Section 2.2.3**, Alternative C would have an average daily water demand of 10,110 gpd. To meet this demand, a new groundwater well would be constructed. The groundwater within the region is typically associated with fractured igneous rocks, which are typically hydrologically linked less often than other groundwater deposits. Because of the distance between the project site and the ~~Rancheria~~ Reservation boundary (2.5 miles south of the project site), development of Alternative C would not impact the groundwater supply of off-site wells. There would be no adverse impact to the groundwater supply.

Groundwater Quality

Alternative C would incorporate filter strips, stormwater interceptors, and soil infiltration into its drainage plan. These design principles would ensure that infiltration of stormwater would not adversely impact groundwater quality. Groundwater quality could also be impacted through subsurface wastewater disposal, as recommended for Alternative C. As discussed in **Chapter 2.0**, wastewater would be treated to a tertiary level and disinfected for recycling in accordance with California Department of Health Title 22 standards (Title 22). Subsurface disposal would consist of drip irrigation at a depth of 12 inches below ground surface. This type of disposal is appropriate for disinfected tertiary treated wastewater as it allows more vegetative uptake of the water and associated nutrients and maintains a greater separation from the groundwater table than standard subsurface disposal techniques. Because treated wastewater would be of high quality and would have the maximum separation from the groundwater table allowing for more soil contact, wastewater disposal for Alternative C would not adversely impact groundwater quality. Significant adverse effects to groundwater quality would not occur. Project design and recommended measures presented in **Section 5.2** would further minimize all identified adverse effects.

4.2.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Surface Water

Drainage

The potential adverse effects associated with construction and operation of a campground at the Los Coyotes site would be similar to those identified under Alternative C, although to a much lesser degree. The potential adverse effects would include changes to the existing drainage pattern, increased stormwater runoff as depicted in **Table 4.2-4**, and increased potential for entrainment of stormwater contaminants. Based on the estimated runoff rates identified in **Table 4.2-4**, detention of 0.17 and 0.19 acre-feet for the 10-year and 100-year storms, respectively, would be required to ensure runoff rates do not exceed pre-existing conditions. The total combined storage volumes of the filter strips, landscape areas, and detention basins would provide the necessary detention, reducing impacts from the construction of impervious surfaces. Significant adverse effects to off-site and on-site drainages would not occur.

TABLE 4.2-4
ESTIMATE RAINFALL AND RUNOFF FOR ALTERNATIVE D

Storm Frequency	24-hour Precipitation	Pre-Development Runoff Rate	Alternative D Runoff Rate
50-years	10.0 inches	31 cfs	73 cfs
100-years	11.0 inches	34 cfs	81 cfs
Source: Questa, 2007			

Flooding

Impacts for Alternative D would be similar to those discussed for the Alternative C. Located outside the floodplain as depicted by FEMA flood insurance rate maps, the area is designated as an undetermined zone. The drainage plan ensures flooding would not occur as a result of the implementation of Alternative D. Significant adverse effects associated with flooding would not occur.

Water Quality

Potential impacts of Alternative D to off-site water quality would be similar to those of the other project alternatives. The introduction of impervious surfaces increases the potential for entrained contaminants in stormwater runoff. As discussed under Alternative C the implementation of the BMPs incorporated into the SWPPP, as discussed in **Chapter 2.0**, would assure no adverse impacts to surface water resources to occur from construction or operation of Alternative D.

Groundwater

Groundwater Supply

As identified in **Section 2.2.4**, Alternative D would have an average daily water demand of 7,210 gpd. As discussed for Alternative C, the water demand would be met without adversely affecting adjacent groundwater supplies and wells. There would be no adverse impact to the groundwater supply.

Groundwater Quality

Groundwater quality would not be adversely affected because of the water quality measures incorporated into project design as discussed in **Chapter 2.0**. Furthermore, the shallow drip-irrigation method of wastewater disposal would increase soil contact time prior to reaching the groundwater table. There would be no adverse impact to the groundwater quality.

4.2.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur under Alternative E.

4.3 AIR QUALITY

Introduction

This section identifies the direct effects to air quality that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.3**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.3**.

Global Assessment Criteria

Adverse effects to ambient air quality could result if either construction or operation would result in violations of the Federal Clean Air Act (CAA) provisions, or if emissions would impede a state's ability to comply with the California Clean Air Act (CCAA) and to meet national ambient air quality standards (NAAQS).

4.3.1 METHODOLOGY

Emissions resulting from the alternatives are analyzed in two distinct phases, construction and operational. Construction emissions are intermittent and temporary in nature and do not overlap with the operational phase. Pollutants of concern during construction are those that are designated as non-attainment in the respective Air Basin for each of the alternatives. For Alternatives A and B in the Mojave Desert Air Basin, this includes ozone (the largest sources of which are NO_X and~~,~~ ROG emissions), and particulate matter less than 10 microns in diameter (PM_{10}), and for Alternatives C and D in the San Diego Air Basin, includes ozone only (NO_X and ROG emissions) NO_X and ROG are produced during combustion of diesel and gasoline fuels in heavy equipment and emitted by employee vehicles. The bulk of PM_{10} emissions are from fugitive dust, which is produced during grading activities.

Operational emissions consist of area and vehicle emissions. Pollutants of concern from vehicle emissions are NOx, ROG, and carbon monoxide (CO). CO is a localized pollutant and dissipates readily; therefore, CO is analyzed under "CO Hot Spot Analysis."

Construction

URBEMIS is an Environmental Protection Agency (EPA) and California Air Resource Board (CARB) air quality computer model that estimates construction, area source, and operational emissions of CAPs and carbon dioxide (CO_2) from land uses. URBEMIS 2007, which is the most recent version of the software, uses the most relevant EPA, CARB, and/or district-specific emission factors, meteorological data, and estimates emissions reductions. URBEMIS was used to estimate emissions from all construction-related sources of the project alternatives. URBEMIS modeling was performed with the assumption that construction would begin in January 1, 2012 and continue at an average of 22 days per month for 15 months. For Alternative A, exported soil will be trucked off-site from excavation activities related to the below ground parking structure. A conservative quantity of exported soil was used in the URBEMIS model to determine emissions from the export of soil. No export of material would be required for

Alternatives B, C, and D. Emissions results from URBEMIS are presented below and URBEMIS output files are included within **Appendix L** of the Draft EIS/TEIR.

Operation

URBEMIS was used to estimate emissions associated with operation of the project alternatives. Input values for the model included URBEMIS defaults and site specific data. The operational effects to air quality were analyzed for both near-term 2013 conditions and cumulative long-term 2030 conditions. Emissions associated with operation are compared to the general conformity *de minimus* levels to evaluate the effects of operational activities on air quality.

Trip Generation Rates

The trip generation rates used in the URBEMIS air quality model are from the Institute of Transportation Engineers, Trip Generation Manual, 7th Edition (ITE) and the transportation/circulation reports from similar Indian casino projects. The Manual includes trip generation rates for Las Vegas style casinos; however, it does not include trip generation rates for Indian gaming facilities Indian gaming facilities are generally different than Las Vegas style casinos in location, gaming, and size; therefore, using the Manual's Las Vegas casino trip generation rates would not accurately depict the proposed casino project. The trip generation rates used to determine air quality impacts is based on six northern California Indian casinos traffic surveys conducted by Fehr and Peers and David Evans and Associates, and presented in the Shingle Springs Rancheria Interchange 2001, *Traffic Operation Analysis* (SSRI, 2001). The trip generation rate was determined to be 39.43 trips per thousand square feet of casino floor space. The casino floor space was determined by subtracting the square footage of the pool area from the projects total square footage provided in **Table 2-1**. A hotel trip generation rate of 8.24 and 127.15 was used to determine project emissions from the hotel and high turn-over restaurant, respectively. The trip generation rate was provided by the ITE, land use category 310 and 932.

Trip Distribution

The average vehicle trip length associated with Alternatives A and B is expected to vary from the default trip length values included in URBEMIS. Therefore, project-specific trip length values were used in the air quality analysis. **Table 4.3-1** shows the trip distance from the three major market areas. The average trip length was estimated by identifying geographic patron market areas, estimating the average distance to each market area, and estimating the percent of total patrons traveling from each market area.

Trip Reduction

Trip reductions were estimated to provide a more accurate measure of the total new trips produced by Alternatives A and B. Trip reductions were estimated for ~~pass-by~~diverted-link and internal capture between the hotel and casino. ~~Pass-by~~Diverted-link trips are trips that are on the road going to a different destination and stop at the proposed facilities. ~~Pass-by~~Diverted-link trips would consist of vehicles traveling on Interstate 15 (I-15) between Los Angeles and Las Vegas that stop at the proposed gaming facility. The traffic volume on I-15 in the City of Barstow is 60,000 vehicles per day (Caltrans, 2009). A large number of these trips are traveling to Las Vegas and would have a tendency to stop at the proposed gaming facility. A 40 percent reduction in casino related trip generation is estimated from ~~pass-~~

~~by~~diverted-link trips, which equates to a 4.7 percent capture rate from I-15. A capture rate of between three and five percent is consistent with the capture rates of the casinos used to determine the trip generation rate applied to the gaming alternatives. Internal interaction between the casino and hotel would account for a 75 percent reduction in hotel trips. A 75 percent reduction in hotel trips due to internal capture is consistent with the *Mississippi Gulf Coast Transportation Management Plan for Waterfront Development*, 1993 (Plan). The Plan studied various small-rural casinos and found that there was an internal capture rate of 75 percent.

TABLE 4.3-1
ALTERNATIVES A AND B TRIP DISTRIBUTION

Major Market Routes	Major Cities within Market Area	Trip Distance[1] (miles)	Percentage (%)
Site Vicinity	Barstow	2	10
South 15	Los Angeles	26	60
West 58	Bakersfield	48	30
Weighted Average Trip Length		**30**	

Notes: [1] Mileage derived from Google Earth mapping program.
Source: AES, 2009

General Conformity

The United States Environmental Protection Agency (USEPA) promulgated the General Conformity Rule on November 30, 1993, to implement the conformity provision of Title I, § 176 (c)(1) of the CAA, which requires that the federal government not engage, support, or provide financial assistance for licensing, permitting, or approving any activity not conforming to an approved state implementation plan (SIP). General Conformity is an issue addressed during the National Environmental Policy Act (NEPA) process.

General Conformity Process

The conformity process involves two phases. The first phase is the conformity review process, which evaluates whether the conformity regulations would apply to the federal action (i.e. whether a determination is warranted). The second phase is the conformity determination process, which demonstrates how a federal action conforms to the applicable SIP.

Conformity Review

The purpose of a conformity review is to evaluate whether the conformity determination requirements would apply to a federal action under 40 CFR 93.153. There are four steps in the review process, of which the first three can be performed in any order. The four steps are identified below:

- Determine whether the proposed action causes emissions of criteria air pollutants (CAPs).
- Determine whether the emissions of a criteria pollutant or its precursor (i.e. nitrogen oxides [NOx] and reactive organic gases [ROG] for ozone [O_3]) would occur in a non-attainment or maintenance area for that CAP.

- Determine whether the federal action is exempt from the conformity requirement as per 40 CFR 93.153 (c)(2)-(e).
- Estimate the total emissions of the pollutants of concern from the proposed action and compare the estimates to the *de minimus* threshold of 40 CFR 93.153 (b)(1) and (2) and to the non-attainment or maintenance area's emissions inventory for each CAP.

If the proposed project and/or alternatives do not emit pollutants or are exempt under 40 CFR 93.153 (c)(2)-(e), or if the affected air basin is in attainment for all criteria pollutants, no further action is necessary. Otherwise, the proposed project's estimated emissions must be compared to the *de minimus* thresholds set forth in 40 CFR 93.153 (b)(1) and (2). If the emissions are greater than or equal to the *de minimus* threshold, a conformity determination must be performed.

General conformity thresholds would apply to Alternatives A and B because they are located in the Mohave Desert Air Basin (MDAB), which has been designated by the EPA as nonattainment for O_3 and PM_{10}. Alternatives C and D would also be subject to general conformity thresholds for ROG and NOx because they are located in the San Diego County Air Basin (SDCAB), which has been designated by the EPA as nonattainment for O_3. Urban Emission 9.2.4, 2007 (URBEMIS) air quality model does not contain meteorological data or San Diego County Air Pollution Control District (SDCAPCD) approved emission factors; therefore, Riverside County meteorological data and emission factors were used due to the proximity of the Los Coyotes site for Alternatives C and D to Riverside County.

Carbon Monoxide Hot Spot Analysis

Implementation of the project alternatives would result in emissions of CO. Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated by Hot Spot Analysis. In accordance with the *Transportation Project-Level Carbon Monoxide Protocol*, Hot Spot Analysis is conducted on intersections that after mitigation would have a level of service (LOS) of E or F (UC Davis, 1996). No intersections within the vicinity of the Barstow or Los Coyotes sites would have an LOS after the implementation of recommended mitigation that would warrant a Hot Spot Analysis (refer to the TIA provided as **Appendix H** of the Draft EIS/TEIR). No further analysis is needed.

Greenhouse Gas Emissions

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. A recent federal guidance on climate change is the CEQ's Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, released on February 18, 2010. The Draft Guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. The guidance notes that the 25,000 metric tons is not a threshold for evaluating climate change on the project level. CARB recommended in its Climate Change Scoping Plan (CARB, 2008) that climate change analysis for environmental

documents include quantification of GHG emissions, assessment of the significance of any impact on climate change (provided in **Section 4.13**), and, identification of mitigation or alternatives that would reduce the GHG emissions. The analysis presented in this EIS/TEIR is consistent with the guidance provided by CARB's 2008 Climate Change Scoping Plan. As recommended by the Proposal, this analysis considers whether project emissions are individually or cumulatively significant. Based on the Proposed Project's GHG emissions (see **Section 4.13**), it was determined that specific climate change impacts could not be attributed to the proposed development. As such, project impacts are most appropriately addressed in terms of the incremental contribution to a global cumulative impact. For a discussion and analysis of cumulative impacts related to climate change, refer to **Section 4.13**.

4.3.2 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Construction ~~Impacts~~ Emissions

Construction of Alternative A would result in the generation of ROG, NO_X, and PM_{10} emissions from construction work trips; construction equipment, fugitive dust, and export haul trucks. Construction emissions were estimated using URBEMIS air quality model. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR. **Table 4.3-2** presents an estimate of construction-related emissions for Alternative A.

TABLE 4.3-2
ALTERNATIVE A UNMITIGATED CONSTRUCTION EMISSIONS

Construction Year	ROG	NOX	PM10
	tons per year		
2012	3.44	9.09	5.78
2013	1.22	1.02	0.08
Max Emissions	**3.44**	**9.09**	**5.78**
De Minimus Levels	25	25	100
Exceedance	*No*	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR)

Operational ~~Impacts~~Emissions

Emissions of ROG, NOx, and PM_{10}, from area sources and vehicles traveling to and from Alternative A were estimated. **Table 4.3-3** presents area and mobile source emissions for Alternative A.

Air Quality Effects - General Conformity Review

Since Alternative A emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone and PM_{10}, the estimated emissions must be compared to the *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-2** and **4.3-3** compare construction and operational emissions, respectively to the applicable conformity

thresholds. Construction emissions do not exceed *de minimus* levels; however, operational emissions exceed *de minimus* levels for ROG and NOx; therefore, a conformity determination is needed to demonstrate that the Proposed Project conforms to the approved state implementation plan (SIP). There are several options for Alternative A to demonstrate conformance with the approved SIP: 1) offset emission credits may be purchased for the total direct and indirect emissions, which fully offsets within the same non-attainment or maintenance area so that there is no net increase in emissions, 40 CFR 93.158 (a)(2); 2) emissions from the project coupled with the current emissions in the non-attainment area would not exceed the emissions budget in the SIP, 40 CFR 93.158 (a)(5)(i)(A); or 3) the Proposed Project can request that the SIP be changed by the State Governor or the State Governor's designee to include the emissions budget of the Federal action, 40 CFR 93.158 (a)(5)(i)(B). A conformity determination for Alternative A is ongoing (refer to **Appendix P** of the Final EIS/TEIR). It is anticipated that conformity will be shown through the purchase of offset emission credits; therefore, ~~a~~ mitigation has been required in **Section 5.3** that would reduce operational emissions and require the purchase of off-set emission credits so that there is no net increase in NOx or ROG emissions, meeting federal general conformity requirements. Therefore, after mitigation, Alternative A would not result in significant adverse effects to local or regional air quality.

TABLE 4.3-3
ALTERNATIVE A UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx	PM_{10}
	tons per year		
Area	0.45	0.53	0.00
Mobile	26.77	42.45	60.47
Total Emissions	**27.22**	**42.98**	**60.47**
De Minimus Levels	25	25	100
Exceedance	*Yes*	*Yes*	*No*
Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)			

4.3.3 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Construction ~~Impacts~~ Emissions

Construction of Alternative B would result in the generation of ROG, NO_X, and PM_{10} emissions from construction work trips; construction equipment, and fugitive dust from grading and earth moving activities. **Table 4.3-4** presents an estimate of construction-related emissions for Alternative B.

Operational ~~Impacts~~ Emissions

Trip Generation Rates and Trip Distribution

The trip generation rate used to estimate mobile emissions for the casino component of Alternative B is the same as Alternative A (39.43 trips per thousand square feet of casino floor space). The trip distribution for Alternative B is also the same as Alternative A.

Operational Emissions

Emissions of ROG, NOx, and PM_{10}, from area sources and vehicles traveling to and from Alternative B were estimated. **Table 4.3-5** presents area and mobile source emissions for Alternative B.

TABLE 4.3-4
ALTERNATIVE B UNMITIGATED CONSTRUCTION EMISSIONS

Construction Year	ROG	NO_X	PM_{10}
	tons per year		
2012	2.65	8.44	2.94
2013	0.90	0.96	0.07
Max Emissions	**2.65**	**8.44**	**2.94**
De Minimus Levels	~~100~~25	~~100~~25	100
Exceedance	*No*	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR).

TABLE 4.3-5
ALTERNATIVE B UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx	PM10
	tons per year		
Area	0.34	0.37	0.00
Mobile	19.74	31.41	44.75
Total Emissions	**20.08**	**31.78**	**44.75**
De Minimus Levels	25	25	100
Exceedance	*No*	*Yes*	*No*

Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)

Air Quality Effects - General Conformity Review

Since Alternative B emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone and PM_{10}, the estimated emissions must be compared to the *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-4** and **4.3-5** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions do not exceed *de minimus* levels; however, operational emissions exceed *de minimus* levels for NOx; therefore, Alternative B would have a potentially adverse effect on local and regional air quality and a conformity determination is required (refer to **Appendix P** of the Final EIS/TEIR). It is anticipated that conformity will be shown through the purchase of offset emission credits; therefore, mitigation has been required in **Section 5.3** that would reduce operational emissions and require the purchase of off-set emission credits so that there is no net increase in NOx emissions, meeting federal general conformity requirements. Therefore, after mitigation, Alternative B would not result in significant adverse effects to local and regional air quality.

4.3.4 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Construction ~~Impacts~~ Emissions

Construction of Alternative C would result in the generation of ROG and NO_X emissions. **Table 4.3-6** presents an estimate of construction-related emissions for Alternative C. As detailed in the URBEMIS output files provided as **Appendix L** of the Draft EIS/TEIR, emissions have been estimated for all phases of construction, including mass grading, fine grading, building, painting, and paving.

TABLE 4.3-6
ALTERNATIVE C UNMITIGATED CONSTRUCTION EMISSIONS

Year	ROG	NO_X
	tons per year	
2012	0.15	0.98
2013	0.31	0.86
Max Emissions	**0.31**	**0.98**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR)

Operational ~~Impacts~~ Emissions

Trip Generation Rate

The trip generation rate applied to Alternative C is the same as Alternative A (39.43 trips per thousand square feet of casino floor space). Under Alternative C, no ~~pass-by~~diverted-link reduction was used. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR.

Trip Distribution

The average length of vehicle trips associated with Alternative C is expected to vary from the default trip length values provided in the URBEMIS air quality model. Therefore, a project-specific trip length was used in the air quality analysis. The project would attract patrons from San Diego County and the surrounding counties; therefore a conservative 70 mile trip length was used to determine air quality impacts.

Operational Emissions

Emissions of ROG and NOx, from area sources and vehicles traveling to and from Alternative C were estimated. **Table 4.3-7** presents area and mobile source emissions for Alternative C. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR.

Air Quality Effects - General Conformity Analysis

Since Alternative C emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone, the estimated project emissions must be compared to *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-6** and **4.3-7** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions and operational emissions do not exceed *de minimus* levels; therefore, Alternative C conforms to the applicable state implementation plan and would not result in significant adverse effects to local and regional air quality. Construction best management practices provided in **Section 5.3** would further reduce construction related emissions.

TABLE 4.3-7
ALTERNATIVE C UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx
	tons per year	
Area	0.05	0.03
Mobile	8.67	16.61
Total Emissions	**8.72**	**16.64**
De Minimus Levels	100	100
Exceedance	*No*	*No*
Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)		

Odor

Alternative C would result in the development of a wastewater treatment plant (WWTP). As discussed in **Section 2.2.4** of the EIS/TEIR, the WWTP would consist of a tertiary treatment facility utilizing a membrane bioreactor (MBR). Treated wastewater would be disposed of through a subsurface disposal system. The MBR system would minimize the potential for odors emitted by the small WWTP (approximately 9,000 gallons per day of effluent). The subsurface disposal of treated wastewater would further reduce odors. Given the size of the WWTP, the proposed process by which the wastewater is treated, the distance of the nearest sensitive receptor (approximately two miles), and the mountainous topography, odors emitted by the WWTP would not be detectable at the nearest sensitive land use. No further analysis is needed.

4.3.5 ALTERNATIVE D – LOS COYOTES CAMPGROUND

Construction ~~Impacts~~ Emissions

Construction of Alternative D would result in the generation of ROG and NO_X emissions. **Table 4.3-8** presents an estimate of these construction-related emissions for Alternative D. As detailed in the URBEMIS output files provided as **Appendix L** of the Draft EIS/TEIR, emissions have been estimated for all phases of construction, including mass grading, fine grading, building, painting, and paving.

TABLE 4.3-8
ALTERNATIVE D UNMITIGATED CONSTRUCTION EMISSIONS

Year	ROG	NO_X
	tons per year	
2012	0.18	0.95
2013	0.21	1.14
Max Emissions	**0.21**	**1.14**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR)

Operational ~~Impacts~~ Emissions

Trip Generation Rate

The trip generation rate used in the URBEMIS model was provided by the Institute of Traffic Engineers Manual, 7th Edition, 2004, land use code 416. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR.

Trip Distribution

The trip distribution for Alternative D is the same as Alternative C.

Operational Emissions

Emissions of ROG and NOx, from area sources and vehicles traveling to and from Alternative D were estimated. **Table 4.3-9** presents area and mobile source emissions for Alternative D**.**

TABLE 4.3-9
ALTERNATIVE D UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx
	tons per year	
Area	0.02	0.00
Mobile	13.65	25.85
Total Emissions	**13.67**	**25.85**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)

Air Quality Effects - General Conformity Analysis

Since Alternative D emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone, the estimated project emissions must be compared to *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-8** and **4.3-9** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions and operational emissions do not exceed *de minimus* levels; therefore, Alternative D conforms to the applicable state implementation plan and would not result in significant adverse effects to local and regional air quality.

Odor

Alternative D would result in the development of a wastewater treatment plant (WWTP). As discussed in **Section 2.2.4** of the EIS/TEIR, the WWTP would consist of a tertiary treatment facility utilizing a membrane bioreactor (MBR). Treated wastewater would be disposed of through a subsurface disposal system. The MBR system would minimize the potential for odors emitted by the small WWTP (less than 6,400 gallons per day of effluent). The subsurface disposal of treated wastewater would further reduce odors. Given the size of the WWTP, the proposed process by which the wastewater is treated, the distance of the nearest sensitive receptor (approximately two miles), and the mountainous topography, odors emitted by the WWTP would not be detectable at the nearest sensitive land use. No further analysis is needed.

4.3.6 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potential adverse effects to air quality identified for Alternatives A through D are anticipated to occur.

4.4 BIOLOGICAL RESOURCES

This section identifies the effects to biological resources that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.4**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.4**.

Assessment Criteria

Adverse effects to biological resources would occur if either construction or operation would result in the destruction of critical habitat, the filling of waters of the United States (U.S.) (including wetlands), or the take of special status species. The analysis of potential effects was based on the biological setting as determined by field surveys conducted by Analytical Environmental Services (AES) in 2006; informal consultation with the United States Fish and Wildlife Service (USFWS); and a review of pertinent scientific literature and data, including the California National Diversity Database (CNDDB) and California Native Plant Society (CNPS) lists. A Biological Assessment (BA) has been prepared for Alternatives A and B and is included as ~~**Appendix M**~~ **Appendix T** of the Final EIS/TEIR. Potential effects to biological resources associated with the development of each project alternative are discussed below.

4.4.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Habitats

Alternative A would disturb a majority of the Barstow site and would impact most of the Mojave creosote bush scrub habitat. As discussed in **Subsection 3.4.1**, Mojave creosote bush scrub provides generally suitable habitat for the desert tortoise, a federally listed species, and several migratory bird species. However, Mojave creosote bush scrub habitat is relatively abundant on a local and regional scale. The Bureau of Land Management (BLM) protects a large portion of existing Mojave creosote bush scrub in the vicinity of the project site, including property adjacent to the Barstow site, through public ownership. No USFWS designated critical habitat is located within the Barstow site. As no destruction of critical habitat would occur, no adverse effects to habitats would result from the development of Alternative A.

Waters of the U.S.

No potentially jurisdictional drainages or wetlands are located within the Barstow site. Development of Alternative A would have no impacts to wetlands or waters of the U.S.

State Listed Species

Impacts to western burrowing owl (*Athene cunicularia*), Le Conte's thrasher (*Toxostoma lecontei*), and Mojave ground squirrel (*Spermophilus mohavensis*) were assessed, as these state listed species have the potential to occur on or in the immediate vicinity of the Barstow site.

The burrowing owl has a high tolerance for non-threatening human activity and may occur on the edge of developed areas. As the project site is located adjacent to existing development to the north and west and open space to the south and east, development of Alternative A would not result in significant adverse impacts to western burrowing owl. While habitat for the Le Conte's thrasher exists on and in the immediate vicinity of the Barstow site, it is unlikely that this species occurs due to the high level of human activity already occurring in the area. Should Le Conte's thrasher occur on or in the immediate vicinity of the Barstow site, then light and noise associated with construction and operation of Alternative A may cause the bird to relocate to less disturbed habitats. Therefore, Alternative A would not result in significant adverse effects to Le Conte's thrasher. Recommended mitigation measures presented in **Section 5.4** for nesting birds would further reduce or eliminate all potential adverse effects to western burrowing owl and Le Conte's thrasher.

Mojave ground squirrel has the potential to occur on or in the vicinity of the Barstow site. While this species has been known to occur on the edge of human development near Barstow, this species typically occurs within habitats that have minimal human activity. Development of Alternative A would reduce the amount of undisturbed habitat available to this species. However abundant undisturbed habitat exists to the south and to the east of the Barstow site. As such, development of Alternative A would not result in significant adverse effects on the Mojave ground squirrel.

Federally Listed Species

Pursuant to the requirements of the Federal Endangered Species Act (FESA) of 1973, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the study area and determine whether the proposed project would have a potentially "significant" impact upon such species. Under FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is proposed for listing under FESA or to result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). The USFWS and the National Marine Fisheries Service (NMFS) enforce the provisions as stipulated within the FESA (16 USC Section 1531 *et seq*.). Threatened and endangered species on the federal list (50 CFR Subsection 17.11, 17.12) are protected from "take" (direct or indirect harm), unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered to a lead federal agency.

As discussed in **Subsection 3.5.4**, one federally listed species has the potential to occur on the Barstow site: the Mojave desert tortoise (*Gopherus agassizii*). In addition to the desert tortoise, there are 15 other federally listed species known to occur in San Bernardino County. None of these other federal special-status species are likely to occur within the Barstow site because it is either outside of the species' range or because it does not provide suitable habitat. The desert tortoise is known to utilize Mojave creosote bush scrub habitats that are similar to those present within the Barstow site and immediate vicinity~~. Due to the transitional nature and the high-level of human activity in the vicinity of the Barstow site, the habitat is less than optimal for this species.~~ Although Mojave creosote bush scrub provides habitat for the Mojave desert tortoise, the habitat is of low quality on-site because of several dirt roads crisscrossing the site and the urban land uses and barriers to overland movement surrounding the project site including

Lenwood Road, an outlet mall, developed areas within the City of Barstow to the west and north, and the Stoddard Valley OHV area, which is heavily used by off-road vehicle traffic, to the south and east. The highways located to the north and west of the project site are likely barriers to Mojave desert tortoise movement. No Mojave desert tortoises or their signs were observed during the March 30, 2012 protocol survey conducted within the project site (**Appendix T** of the Final EIS/TEIR). Given that the site is highly disturbed and the land uses surrounding the project site consist of OHV use, paved roads, and commercial development, and that no Mojave desert tortoise or their sign was observed during the biological surveys, this species is unlikely to occur within the project site. However, ~~S~~should this species occur within the Barstow site, construction activities in and around the Mojave creosote bush scrub habitat ~~could~~ have the potential to adversely affect this species. Mortality or injury to this species could result from construction vehicle movement, ground disturbance, or other project-related activities. In addition, this species may use construction vehicles and/or equipment as nighttime shelter, which may result in mortality or injury to the species.

Construction of Alternative A would likely result in increased human activity in the vicinity of the Barstow site. Such an increase in human activity could result in an increase of trash and food waste, which has been known to attract the common raven (*Corvus corax*). Increased raven populations could ~~have an additional~~ adversely ~~e~~affect ~~on~~ the desert tortoise because ravens prey on juvenile desert tortoises. Recommended mitigation measures presented in **Section 5.4** would avoid or minimize any potential adverse effects to desert tortoise. With the incorporation the recommended mitigation measures, Alternative A may affect, but is **not likely to adversely affect** the desert tortoise~~.~~. In accordance with Section 7 of the FESA, the BIA initiated consultation with USFWS regarding potential effects to the desert tortoise. In a letter dated July 6, 2012, the USFWS concurred that the Proposed Action is not likely to adversely affect the desert tortoise with the implementation of mitigation measures in Section 5.4. Consultation letters are provided in **Appendix T** of this Final EIS/TEIR.

Migratory Birds

Under the Migratory Bird Treaty Act of 1918 (16 USC Section 703-712), migratory bird species and their nests and eggs, which are on the federal list (50 CFR Section 10.13) are protected from injury or death. Accordingly, project-related disturbances must be reduced or eliminated during the nesting cycle.

Several migratory birds, such as Le Conte's thrasher (*Toxostoma lecontei*), lesser nighthawk (*Chordeiles acutipennis*), killdeer (*Charadrius vociferous*), and western burrowing owl (*Athene cunicularia*), have the potential to nest in low-growing vegetation or on the sand within the Barstow site. If construction activities (e.g., vegetation removal, grading, etc.) associated with project development occur during the nesting season, migratory and/or nesting bird species such as those mentioned above could be adversely impacted. Disturbance that occurs within 500 feet of an active nest could cause nest abandonment or premature fledging of the young. Recommended mitigation measures presented in **Section 5.4** would minimize the potential for adverse effects to occur. After mitigation, Alternative A would not result in significant adverse effects to nesting migratory birds.

4.4.2 ALTERNATIVE B – BARSTOW REDUCED CASINO- HOTEL COMPLEX

Habitats

Alternative B would disturb a majority of the Barstow site and would impact most of the Mojave creosote bush scrub habitat within the site boundaries. No USFWS designated critical habitat occurs on the Barstow site. Similar to Alternative A, no adverse or significant effects to habitats would occur as a result of Alternative B.

Waters of the U.S.

As with Alternative A, development of Alternative B would have no adverse effects on waters of the U.S. or wetlands.

Federal and State Listed Species

Effects on federally and state listed species associated with development of Alternative B are similar to those identified for Alternative A. Similar to Alternative A, development of Alternative B has the potential to result in adverse effects to desert tortoise. Recommended mitigation measures presented in **Section 5.4** would avoid or minimize all identified adverse effects to desert tortoise. With the incorporation the recommended mitigation measures, Alternative B may affect, but is **not likely to adversely affect** the desert tortoise. In accordance with Section 7 of the FESA, the BIA initiated consultation with USFWS regarding potential effects to the desert tortoise. In a letter dated July 6, 2012, the USFWS concurred that the Proposed Action is not likely to adversely affect the desert tortoise with the implementation of mitigation measures in Section 5.4. Consultation letters are provided in **Appendix T** of this Final EIS/TEIR.

Migratory Birds

Potential impacts of Alternative B to migratory bird species are similar to the potential impacts identified under Alternative A. Recommended mitigation measures in **Section 5.4** would minimize the potential adverse effects to nesting migratory bird species. After mitigation, Alternative B would not result in significant adverse effects to nesting migratory birds.

4.4.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Habitats

No USFWS designated critical habitat is located within the Los Coyotes site. As such, no adverse effects to habitats would occur because there is no destruction of critical habitat. Alternative C would affect approximately 9.93 acres of non-native grassland habitat and 4.88 acres of Coast live oak woodland habitat. Potential impacts to the Coast live oak woodland habitat would be minimal due to the relatively common and abundant nature of this habitat type in the region. The non-native grassland habitat on-site provides potentially suitable habitat for Stephen's kangaroo rat, a federally listed species. Potential project-related effects on Stephen's kangaroo rat are discussed below.

Waters of the U.S.

A seasonal wetland occurs in the southern portion of the Los Coyotes site and San Ysidro Creek, an intermittent channel, flows immediately to the west of the Los Coyotes site. For the purposes of this analysis, San Ysidro Creek is considered to be potentially jurisdictional waters of the U.S. Since this area is outside the area of development, significant adverse effects to waters of the U.S. would not occur. Regulatory requirements and best management practices (BMPs) related to water resources presented in **Section 5.2** would further reduce any adverse effects.

A formal wetland delineation and verification by the U.S. Army Corps of Engineers (USACE) would be required to determine the jurisdictional status of the seasonal wetland at the southern edge of the Los Coyotes site. If this feature is determined to be jurisdictional, Alternative C could have an adverse effect on waters of the U.S. because of project-related impacts to this seasonal wetland feature. Implementation of the recommended mitigation measures in **Section 5.4** would minimize all adverse effects to wetlands and waters of the U.S.

State Listed Species

Due to the location of the Los Coyotes site within the Los Coyotes Reservation, off-reservation impacts to state listed species would likely not occur.

Federally listed Species

Special Status Amphibian Species

Breeding habitat for the arroyo toad (*Bufo californicus*) does not occur west of the Los Coyotes site, within San Ysidro Creek, as the channel does not have persistent water flows or pools in this area. However, potential breeding habitat does occur within small pools in the San Ysidro Creek south of the Los Coyotes site, and in wetland areas in the southern portion of the Los Coyotes site, and immediately south of the Los Coyotes site. This species was not observed on-site during the field assessments conducted by AES in May 2006. Alternative C has the potential to impact this species if the arroyo toad occurs within these two potential habitat areas, as arroyo toads can travel up to a kilometer from their breeding sites during the nonbreeding season. Regulatory requirements and BMPs related to water resources presented in **Section 5.2** and implementation of the recommended mitigation measures presented in **Section 5.4** would minimize adverse effects to waters of the U.S. as well as to the arroyo toad. With the incorporation the recommended mitigation measures, Alternative C may affect, but is not likely to adversely affect the arroyo toad.

Special Status Mammal Species

While Stephen's kangaroo rat (*Dipodomys stephensi*) was not observed on-site during the field assessment, this species is typically nocturnal and the Los Coyotes site was surveyed during the day. Development of Alternative C could impact this species by removal of habitat and take of the species during construction, if it occurs on-site. Development of Alternative C may have adverse effects on Stephen's kangaroo rat. The aspects of overall project design and implementation of the recommended mitigation measures presented in **Section 5.4** would minimize adverse effects to Stephen's kangaroo rat.

Migratory Birds

Development of Alternative C could affect vegetative communities that may potentially support active nests of migratory birds, such as western bluebird (*Sialia mexicana*), lesser nighthawk (*Chordeiles acutipennis*), Anna's hummingbird (*Calypte anna*), and lark sparrow (*Chondestes grammacus*). Development of Alternative C may have adverse effects on nesting migratory birds, should vegetation removal activities associated with project development occur during the nesting season. The aspects of overall project design and implementation of the recommended mitigation measures in **Section 5.4** would minimize adverse effects to nesting migratory bird species.

4.4.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Habitats

No USFWS designated critical habitat is located within the Los Coyotes site. As such, no adverse effects to habitats would occur because there would be no destruction of critical habitat. Development of Alternative D would impact non-native grassland habitat and Coast live oak woodland habitat. These habitat impacts are similar to, but reduced, to those described for Alternative C.

Waters of the U.S.

Potential effects of Alternative D to waters of the U.S. and wetland features are similar to those previously discussed for Alternative C. Regulatory requirements and BMPs related to water resources, as presented in **Section 5.2** above, would minimize adverse effects to San Ysidro Creek. Mitigation in **Section 5.4** would minimize adverse effects to identified wetland features.

Federal and State Listed Species

Development of Alternative D would have similar effects on federally and state listed species to those previously discussed for development of Alternative C. The aspects of overall project design and implementation of the recommended mitigation measures in **Section 5.4** would minimize all identified adverse effects to state and federally listed special-status species.

Migratory Birds

Potential impacts to nesting migratory bird species resulting from development of Alternative D are similar to potential impacts discussed for Alternative C. The aspects of overall project design and implementation of the recommended mitigation measures in **Section 5.4** would minimize all identified adverse effects to nesting migratory birds.

4.4.5 ALTERNATIVE E – NO ACTION

Under Alternative E, no changes in land use on the Barstow and Los Coyotes sites are reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section identifies the direct effects to cultural resources that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.5**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.5**.

Assessment Criteria

For cultural resources, adverse effects would result if either construction or operation would result in one of the following impacts to cultural resources that are listed, or eligible for listing, in the National Register of Historic Places (NRHP): physical destruction of or damage to all or part of the resource; alteration of a resource; removal of the resource from its historic location; change of the character of the resource's use or of physical features within the resource's setting that contribute to its historic significance; introduction of visual, atmospheric, or audible elements that diminish the integrity of the resource's significant historic features; and neglect of a resource that causes its deterioration. A Cultural Resources Report (**Appendix N** of the Draft EIS/TEIR) has been prepared and ~~will~~was ~~be~~ submitted to the State Historic Preservation Officer (SHPO) to initiate consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA). In a letter dated June 5 2012, the SHPO concurred with the BIA's finding of *No Historic Property Affected* for the Barstow site. A copy of the consultation letters is provided in **Appendix R** of the Final EIS/TEIR. The findings of the report are summarized below.

4.5.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Cultural Resources

No previously known archaeological or historical resources were identified as a result of the archival research, consultation, or field survey. Therefore, development proposed under Alternative A would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative A has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative A.

Paleontological Resources

No paleontological resources have been reported or observed on or in the vicinity of the Barstow site. Therefore, no known paleontological resources would be affected under Alternative A.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative A has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative A.

4.5.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Cultural Resources

No previously known archaeological or historical resources were identified as a result of archival research, field survey, or consultation. Therefore, development proposed under Alternative B would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative B has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative B.

Paleontological Resources

As stated under Alternative A, no paleontological resources have been reported or observed on or in the vicinity of the Barstow site. Therefore, no known paleontological resources would be affected under Alternative B.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative B has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative B.

4.5.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Cultural Resources

No archaeological or historical resources were identified as a result of the archival research, consultation, or field survey. Therefore, development proposed under Alternative C would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative C has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative C.

Paleontological Resources

No paleontological resources have been reported or observed on or in the vicinity of the Los Coyotes site. Therefore, no known paleontological resources would be affected under Alternative C.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative C has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative C.

4.5.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Cultural Resources

No archaeological or historical resources were identified as a result of the archival research, consultation, or field survey. Therefore, development proposed under Alternative D would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative D has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative D.

Paleontological Resources

As stated under Alternative C, no paleontological resources have been reported or observed on or in the vicinity of the Los Coyotes site. Therefore, no known paleontological resources would be affected under Alternative D.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative D has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative D.

4.5.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potential adverse effects identified for Alternatives A though D are anticipated to occur.

4.6 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

This section identifies the effects to socioeconomics anticipated to result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.6**. Cumulative and specific indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to avoid, minimize, and mitigate for adverse effects identified in this section are presented in **Section 5.6**.

Assessment Criteria

Socioeconomic Impacts

To determine the potential effects of the alternatives associated with socioeconomic conditions, the economic effects of temporary construction and ongoing operational activities of each alternative were measured. Because socioeconomic effects would be most pronounced in the vicinity of the Project sites, the scope of analysis focuses on impacts to the Barstow site and surrounding San Bernardino County for Alternatives A and B, and the Los Coyotes Reservation and surrounding San Diego County for Alternatives C and D. Impacts from construction would be a one-time occurrence, while those from operation would be generated continuously after opening. An adverse economic, fiscal, or social impact would occur if the effect of the project were to negatively alter the ability of businesses and governments to perform at existing levels, or alter the ability of people to obtain public health and safety services. Much of the analysis presented herein relies on data presented in the *Los Coyotes Band of Cahuilla and Cupeño Indians Fee-to-Trust and Barstow Casino Project – Economic Impact and Growth Inducing Study* (Economic Impact Study) included as **Appendix O** of the Draft EIS/TEIR (AES, 2010). Economic effects in this analysis are quantified for San Bernardino County and San Diego County using the Impact Analysis for Planning (IMPLAN) model.

Environmental Justice Impacts

To determine the impacts of the alternatives on environmental justice, the location and status of minority and low-income communities of concern, as identified in **Section 3.6**, are compared to the effect and nature of an alternative's impacts. An adverse environmental justice impact would result if any impact within the scope of this document disproportionately affected an identified minority or low-income community or Native American tribe. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* provides the following direction on how to analyze the impacts of actions on low-income and minority populations:

> Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population (EPA, 1998).

4.6.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Economic Effects

Expenditures on goods and services for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output. Direct output would result from money spent on activities for construction and operational activities of the project. Indirect output would result from expenditures on goods and services by businesses that receive funds directly from the construction and operation of Alternative A. Induced output would result from expenditures on goods and services by employees directly generated from construction and operation of Alternative A.

Construction

Expenditures on goods and services from the construction of Alternative A were calculated from estimated costs for construction, investment in furniture, fixture and equipment (FF&E), various business and consulting fees, and pre-opening expenses. It is assumed that the construction of Alternative A would start in January 2012 and finish in March 2013. Under Alternative A, construction activities are estimated to cost approximately $251.4 million, which is expected to generate a one-time total output of approximately $220.5 million within the County (**Table 4.6-1**). Direct output is estimated to total approximately $161.5 million, of which approximately $157.9 million (98 percent) is attributed to the construction industry. Indirect and induced outputs were estimated to total $22 million and $36.9 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Construction of Alternative A would generate substantial output to a variety of businesses in San Bernardino County. Given the location of Alternative A in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Operation

Expenditures on goods and services from the operation of Alternative A were calculated from revenue projections for the first complete year of operation, currently estimated to be 2014. Under Alternative A, the projected revenue for 2014 was estimated to be $158.2 million and the estimated annual number of patrons would be 2,285,364 (Michigan Consultants, 2010). New spending from the proposed project is expected to generate a net annual total output of approximately $183.5 million within the County (**Table 4.6-2**). Direct output is estimated to total approximately $141.7 million, of which approximately $119.9 million (85 percent) would be attributed to the gaming and entertainment industry. Indirect and induced outputs were estimated to total $23.2 million and $18.6 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

TABLE 4.6-1
ONE-TIME CONSTRUCTION ECONOMIC IMPACT (MILLIONS)

Construction	Alternative			
	A	B	C	D
Development Budget	*$251.4*	*$182.9*	*$9.0*	*$2.4*
Direct Output (Industry)				
Construction	$157.9	$114.7	$3.0	$1.60
Manufacturing	-	-	$0.27*	$0.04
Wholesale Trade	$2.3	$1.7	$0.59	-
Real Estate and Rental	$1.17	$1.17	-	-
Professional: Scientific and Technical Services	-	-	$0.16	-
Direct Total	$161.5	$117.6	$4.38	$1.64
Other Output				
Indirect	$22.0	$16.0	$1.48	$0.54
Induced	$36.9	$26.9	$1.78	$0.67
Total Output	*$220.5*	*$160.5*	*$7.64*	*$2.86*

Source: AES, 2010.
Projections are presented in 2010 dollars
* Includes Mining sector for road construction materials.
Note: Though numbers appear to be estimated to the nearest dollar, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

TABLE 4.6-2
ANNUAL OPERATIONAL ECONOMIC IMPACT (MILLIONS)

Operation	Alternative			
	A	B	C	D
Revenue (Projected 2014)	*$158.2*	*$126.4*	*$9.3*	*$0.68*
Direct Output (Industry)				
Entertainment & Recreation	$119.9	$97.5	$7.0	-
Accommodation & Food Services	$21.7	$7.6	$1.2	$0.60
Direct Total	$141.7	$105.0	$8.2	$0.60
Other Output				
Indirect	$23.2	$17.5	$3.6	$0.23
Induced	$18.6	$13.3	$2.4	$0.21
Total Output	*$183.5*	*$135.8*	*$14.2*	*$1.1*

Source: Michigan Consultants, 2010; AES, 2010
Projections are presented in 2010 dollars
Note: Though numbers appear to be estimated to the nearest dollar, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

Operation of Alternative A would generate substantial output to a variety of businesses in San Bernardino County. Given the location of Alternative A in Barstow, the local economy of Barstow, as discussed in

Subsection 3.6.1, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Substitution Effects

Potential substitution effects (the loss of customers at existing commercial businesses to the new business) of Tribal casinos on existing restaurant, recreation, and retail establishments must be considered when attempting to determine the true magnitude of the casino's impact on the economy. These effects were evaluated in the Economic Impact and Growth Inducing Study (**Appendix O** of the Draft EIS/TEIR). As noted in **Section 3.6**, the potential market for the Barstow casino can be divided into two major sources: close-radius residents and long-distance travelers. The close-radius market consists of individuals who reside in areas where Barstow will either be the closest casino or one of the closer casinos. The long-distance market consists of vehicles on Interstate 15 traveling to Las Vegas, as well as travelers that fork onto Interstate 40 east of Barstow going towards Arizona. The primary market opportunity for the Barstow site is the large number of travelers that currently pass through Barstow on I-15 each year.

The magnitude of the substitution effect can generally be expected to vary greatly by specific location and according to a number of variables. That is, how much of the casino's revenue comes at the expense of other business establishments in the area depends on how many and what type of other establishments are within the same market area as the casino, disposable income levels of local residents and their spending habits, as well as other economic and psychological factors affecting the consumption decisions of local residents. As estimated by Michigan Consultants, the anticipated gaming revenue substitution effect under Alternative A would be approximately 15.4 percent of total projected gaming revenue for the project ($20,864,893). However, this effect would not result in the closure of any of the competing gaming facilities. In fact, it is likely that existing regional casinos would continue to generate significantly positive cash flows. Moreover, any anticipated substitution effects are likely to diminish after the first year of the project's operation and once local residents experience the casino and return to more typical spending patterns. It is important to note that the addition of a casino in San Bernardino County would be likely to expand the gaming market for the region as a whole.

According to a 2000 Harvard University study, worst-case non-gaming substitution effects, occurring in rural environments, have shown on average a nine percent decrease in earnings at local restaurants and bars and an increase in earnings in other commercial sectors (Taylor et al., 2000). According to official U.S. Census Bureau definitions, rural areas comprise open country and settlements with fewer than 2,500 residents (USDA, 2007). In January 2010, the City of Barstow had a population of 24,281 people, which is significantly higher than the U.S. Census Bureau's definition of a rural community (DOF, 2010). Thus, worst case effects as described in the Harvard study would not apply to the Barstow site. Therefore, it may be inferred that if substitution occurs it would be at some percentage lower than nine percent. Given that it is not possible to reliably quantify the substitution effects, this analysis does not reduce the economic impacts from the proposed casino and other alternatives to account for substitution effects. Some of the substitution effects would be counteracted by the behavior of casino guests other than local residents. Specifically, as the casino would draw non-residents to the area, the associated increase in new

visitor demand for off-site entertainment venues, restaurants, and bars would make up for some area residents choosing to visit Alternative A rather than other local establishments. Thus, it is not anticipated that significant substitution effects would occur.

Taxes

Alternative A would result in a variety of fiscal impacts. Since tribes are sovereign nations, they do not pay corporate income taxes on revenue or property taxes on tribal land. Alternative A would increase demand for public services, resulting in increased costs for local governments to provide these services. Tax revenues would be generated for federal, state and local governments from activities including secondary economic activity generated by tribal gaming (i.e., the indirect and induced effects of the economic impact analysis). The taxes on secondary economic activity include: corporate profits tax, income tax, sales tax, excise tax, property tax, and personal non-taxes, such as motor vehicle licensing fees, fishing/hunting license fees, other fees, and fines. Additionally, the gaming compact will provide for revenue sharing between the Tribe and the State, as well as local governments.

Property values assessed by San Bernardino County for parcels within the Barstow site are discussed in **Subsection 3.6.1**. Alternative A would result in the entire area of each of these parcels being transferred to trust status for the Tribe. Therefore, approximately $6,634 in property taxes would be lost by local governments including San Bernardino County and the city of Barstow. The MSA (**Appendix D** of the Draft EIS/TEIR) provides for compensation by the Tribe to Barstow. The Tribe would pay Barstow amounts equal to the service, development, and impact fees that, if the Barstow site were not in trust status, would be charged by Barstow and other local agencies.

As shown in **Table 4.6-3**, substantial tax revenues would be generated for federal, state and local governments from economic activity associated with construction and operation of Alternative A. Local governments include San Bernardino County, Barstow, and other cities within San Bernardino County that would experience economic activity as a result of Alternative A. Construction of Alternative A would generate one-time $13.3 million in federal tax revenues, and $7.5 million in state/county/local tax revenues. Operation of Alternative A would generate annually $3.4 million in federal tax revenues, and $2.7 million in state/county/local tax revenues from indirect and induced taxes. Actual annual tax revenues generated by the project may be greater than those indicated above as direct personal income tax is not accounted for in the operational tax revenue estimate.

Additionally, Alternative A would generate substantial annual revenues to state and local governments from revenue sharing. The MSA provides for compensation by the Tribe to Barstow in the amount of 4.3 percent of the "Net Win" on Class II and Class III electronic games of chance. As detailed in **Appendix O** of the Draft EIS/TEIR, Alternative A would have an estimated annual gaming machine revenue of $121.9 million, resulting in Barstow revenue sharing of $5.3 million per year. Additional payments to Barstow for problem gambling services would total $40,000, and are discussed in the MSA (**Appendix D** of the Draft EIS/TEIR) as well as below in the pathological and problem gambling section.

TABLE 4.6-3
TAX REVENUES (MILLIONS)

Jurisdiction	Alternative			
	A	B	C	D
Construction (One-Time)				
Federal	$13.3	$9.7	$0.61	$0.22
State/County/Local	$7.5	$5.5	$0.42	$0.13
Operation (Annually)				
Federal	$3.4	$2.1	$0.48	$0.04
State/County/Local	$2.7	$2.0	$0.40	$0.03

Source: AES, 2010
Projections are presented in 2010 dollars.
Note: Though numbers appear to be estimated to the nearest dollar, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total. The operational tax revenues indicated in the table include indirect and induced taxes only. Due to the project's unique circumstances, including the proposed location on trust land, direct tax revenues generated during the project's operation phase were not quantifiable. As such, actual tax revenues generated by the project may be greater than those indicated above as direct personal income tax has not been included in the totals.

Effects due to the loss of state and federal tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased local, state and federal tax revenues resulting from construction and operation of Alternative A, and from revenue sharing programs per the tribal compact and the MSA. To ensure revenue sharing between the Tribe and Barstow, provisions of the MSA are included in **Section 5.6**. The net generation of revenues to governments is considered a beneficial impact.

Summary of Economic Effects

Construction and operation of Alternative A would generate substantial economic output to a variety of businesses in San Bernardino County. Given the location of Alternative A in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Additionally, Alternative A would generate substantial fiscal impacts to state, County, and local governments. Potential effects due to the loss of state and federal tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased local, state and federal tax revenues resulting from construction and operation of Alternative A, and from revenue sharing programs per the tribal compact and the MSA. Overall, Alternative A would result in a beneficial impact to the San Bernardino County economy.

Employment

Investment in construction and operational activities would generate substantial direct employment opportunities and wages, as well as indirect and induced employment opportunities and wages. The source of direct, indirect, and induced employment opportunities and wages would be similar to those for economic output, as discussed above. The IMPLAN model was used to estimate employment opportunities generated by Alternative A.

Construction

Under Alternative A, investment in construction activities would generate a one-time total of approximately 1,467 employment opportunities within the County (**Table 4.6-4**). The number of employees would be equivalent to the number of person-years available from wages. A person-year is defined as the amount of labor one full-time employee can complete in a calendar year. For example, two half-time employees working for a year would constitute one person-year. Direct output was estimated to total approximately 990 employment opportunities, of which approximately 968 (97 percent) would be attributed to the construction industry. Indirect and induced employment opportunities were estimated to result in 165 and 331 employment opportunities, respectively.

TABLE 4.6-4
ONE-TIME CONSTRUCTION EMPLOYMENT AND WAGE IMPACTS

Construction Impact	Alternative			
	A	B	C	D
Employment (Person-Years)				
Direct (Industry)				
Construction	968	703	20	10
Manufacturing	-	-	1*	0
Wholesale Trade	15	11	3	-
Real Estate and Rental	7	7	-	-
Professional: Scientific and Technical Services	-	-	1	-
Direct Total	990	721	26	10
Other				
Indirect	165	120	9	3
Induced	331	226	13	5
Total Jobs	*1,467*	*1,068*	*47*	*18*
Wages (Millions)				
Direct (Industry)				
Construction	$43.7	$31.7	$0.94	$0.472
Manufacturing	-	-	$0.05*	$0.005
Wholesale Trade	$0.85	$0.62	$0.208	-
Real Estate and Rental	$0.06	$0.06	-	-
Professional: Scientific and Technical Services	-	-	$0.08	-
Direct Total	$44.6	$32.4	$1.27	$0.477
Other				
Indirect	$7.0	$5.1	$0.46	$0.169
Induced	$10.5	$7.6	$0.49	$0.184
Total Wages	*$62.1*	*$45.1*	*$2.22*	*$0.831*

Source: AES, 2010; Projections are presented in 2010 dollars
* Includes Mining sector for road construction materials.
Note: Though numbers appear to be estimated to the nearest dollar and/or whole number, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

Employment opportunities generated from construction and operation of Alternative A would result in wage generation. Wage totals include hourly and salary payments as well as benefits including health and life insurance and retirement payments. Under Alternative A, investment in construction activities would generate one-time total wages of approximately $62.1 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $44.6 million, of which approximately $43.7 million (98 percent) would be attributed to the construction industry. The generation of employment and wages during the construction phase is considered a beneficial effect of Alternative A.

Operation

Employment opportunities generated from the operation of Alternative A would include entry-level, mid-level, and management positions. Examples of employment opportunities typically offered by tribal casino and resort facilities are listed in **Table 4.6-5**. Average salaries offered are expected to be consistent with, or greater than, those of other tribal gaming facilities, and competitive in the local labor market.

TABLE 4.6-5
TYPICAL TRIBAL CASINO EMPLOYMENT OPPORTUNITIES

Casino slot operations	Hotel management	Food & beverage operations	Financial services
Table games	Hotel facilities	Restaurant services	Support services
Entertainment operations	Hotel marketing	Culinary services	Security services
Casino credit	Housekeeping services	Human resources	Surveillance
Casino administration	Hotel administration	Casino services	Hotel services
Source: AES, 2010.			

As calculated through IMPLAN, operation activities associated with Alternative A would generate an annual total of approximately 1,562 employment opportunities to be captured within San Bernardino County (**Table 4.6-6**). Direct employment impacts were estimated to total approximately 1,207 job opportunities (**Appendix O** of the Draft EIS/TEIR). Indirect and induced employment opportunities were estimated to total 198 and 157, respectively, and would be dispersed and distributed among a variety of different industries and businesses throughout San Bernardino County.

Under Alternative A, operation activities associated with Alternative A would generate annual total wages of approximately $39.7 million within San Bernardino County (**Table 4.6-6**). Direct wages were estimated to total approximately $26.7 million, of which approximately $19.9 million (75 percent) would be attributed to the gaming and entertainment industry. Indirect and induced wages were estimated to total $7.7 and $5.3 million, respectively, and would be dispersed and distributed among a variety of different industries and businesses throughout San Bernardino County. The generation of employment and wages during the operation phase is considered a beneficial effect of Alternative A.

For the purposes of this analysis, it is assumed that the unemployment rate for San Bernardino County will follow a similar trend to what has been projected for the U.S. as described in **Section 3.6**, and that the County will experience an unemployment rate of 10.2 percent in 2014 and a labor force of 931,086 people (**Appendix O** of the Draft EIS/TEIR; **Table 4.6-7**).

TABLE 4.6-6
ANNUAL OPERATIONAL EMPLOYMENT AND WAGE IMPACTS

Operational Impact	Alternative			
	A	B	C	D
Employment (Person-Years)				
Direct (Industry)				
Entertainment and Recreation	870	707	48	6
Accommodation and Food Services	337	116	20	-
Direct Total	1,207	823	68	6
Other				
Indirect	198	150	23	2
Induced	157	112	17	2
Total Jobs	*1,562*	*1,085*	*108*	*9*
Wages (Millions)				
Direct (Industry)				
Entertainment and Recreation	$19.9	$16.2	$1.34	$0.185
Accommodation and Food Services	$6.8	$2.4	$0.39	-
Direct Total	$26.7	$18.5	$1.74	$0.185
Other				
Indirect	$7.7	$5.9	$0.02	$0.07
Induced	$5.3	$5.8	$0.02	$0.06
Total Wages	*$39.7*	*$28.2*	*$0.1*	*$0.314*

Source: AES, 2010
Projections are presented in 2010 dollars.
Note: Though numbers appear to be estimated to the nearest dollar and/or whole number, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

TABLE 4.6-7
PROJECTED SAN BERNARDINO COUNTY LABOR MARKET

2014	
Labor Force	931,086
Unemployment (Rate)	94,971 (10.2%)

Source: AES, 2010.
Note: 2014 Labor market considers direct, indirect, and induced employment.

A portion of new employment opportunities would be filled by people in the County that are currently employed, thereby freeing up existing employment opportunities for other workers. For reasons described above under *Economic Effects*, Alternative A is not expected to result in significant permanent job loss elsewhere due to substitution effects.

Summary of Employment Effects

Construction and operation of Alternative A would generate substantial temporary and ongoing employment opportunities and wages that would be primarily filled by the available labor force in Barstow and San Bernardino County. Given the projected unemployment rate, and the dynamics of the local labor market, San Bernardino County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative A. This would result in employment and wages for persons previously unemployed, increasing the ability of the population to provide themselves with health and safety services and contributing to the alleviation of poverty among lower income households. Additionally, in accordance with Section 10 of the MSA, the Tribe shall work in good faith with the City to employ qualified City residents at the Tribe's resort facilities, as well as offer training programs to assist City residents in becoming qualified for positions at the Resort (**Section 5.6**). This is considered a beneficial effect.

Housing

Based on the information presented in **Section 3.6.1**, in 2014, the San Bernardino County housing market is projected to have 734,831 total units and 84,212 vacant units; the Barstow housing market is projected to have 10,656 total units and 1,852 vacant units (**Table 4.6-8**).

TABLE 4.6-8
PROJECTED 2014 HOUSING MARKET

San Bernardino County	Housing Units
Total Units	734,831
Occupied Units	650,619
Vacant Units	84,212
% Vacant	11.46%
City of Barstow	**Housing Units**
Units	10,656
Occupied Units	8,804
Vacant Units	1,852
% Vacant	17.38%
Source: California Department of Finance, 2010; AES, 2010.	

Indirect and induced employment opportunities would be dispersed among a variety of different businesses in San Bernardino County. Since these opportunities would be located at a variety of locations throughout San Bernardino County, it is expected that employees would be located in the vicinity of these locations, and would not require relocation.

Based on regional housing stock projections, and current trends in San Bernardino County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative A. Therefore, Alternative A is not expected to

stimulate regional housing development. A significant adverse impact to the housing market would not occur. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

Social Impacts

Pathological and Problem Gambling

Gambling, in one form or another, is now legal in every state except Hawaii and Utah. According to an NGISC study, approximately 86 percent of Americans report having gambled at least once during their lifetimes and 63 percent of Americans report having gambled at least once during the previous year (NGISC, 1999). This estimate is based on participation in all forms of gambling, including: lotteries, poker, Internet gambling, betting, and casino gambling.

As described in **Table 4.6-9** there are behaviors of casino customers that can be broken down into five categories. Gaming customers are motivated to visit a casino for a variety of reasons, and some of those reasons may be viewed as criteria that define one as a problem gambler.

TABLE 4.6-9
FIVE BEHAVIORS OF CASINO CUSTOMERS

Behavior Type	Characteristics
Recognition Seekers	Small share of total players. Have high expectation of recognition from the property they patronize. The reward to the casino is an intensely loyal and frequent visitor.
Escapists	Seeks a getaway that does not resemble their everyday routine. Prefer to remain anonymous. Require minimal maintenance in the form of personal attention and complimentary services from the casino.
Reward Seekers	Driven by casino's play rewards program or promotions that compensate them for their play. Gamer will play at the casino with the best deal.
Socializers	Visit a casino to be around others. Once they identify with a particular property they become very loyal with high levels of visitation.
Professionals	Pay very close attention to the types of games a casino offers. Generate large coin handle and accumulate voluminous amounts of slot club points. Loyalty goes to the casino where they can make the most money.
Source: AES, 2010.	

The American Psychiatric Association (APA) describes pathological gambling as an impulse control disorder characterized by "persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits. The gambling pattern may be regular or episodic, and the course of the disorder is typically chronic" (NGISC, 1999). The APA has established ten criteria for diagnosis of a pathological and problem gambler, which include: preoccupation, tolerance, withdrawal, escape, chasing, lying, loss of control, illegal acts, risked significant relationship, and financial bailout. At-risk gaming behaviors typically meet one or two of these criteria; problem gamblers typically meet three to four of these criteria; and pathological gamblers typically meet at least five of these criteria. Collectively, both pathological and problem gambling are referred to as "problem gambling."

An NGISC study reported on three studies, two completed in 1997 and one completed in 1998 that estimate the percentage of American adults classified as pathological gamblers ranged from 1.2 to 1.6

percent (NGISC, 1999). The NGISC noted that pathological gambling often occurs in conjunction with other behavioral problems, including substance abuse, mood disorders, and personality disorders. Even if it were possible to isolate the effects of problem gambling on people who suffer from co-morbidity, it is difficult to then isolate the effects of casino gambling from other forms of gambling. As discussed, casino gambling is only one form of gambling. In fact, the most prevalent forms of gambling are those found in most neighborhoods: scratch lottery cards, lotto, and video lottery terminals.

Residents of San Bernardino County have been exposed to many forms of gambling, including destination casinos, for many years. Further, as discussed in the competition section below, the primary market for Alternative A is vehicle traffic passing through to Nevada and Arizona. An additional casino in San Bernardino County under Alternative A is not expected to substantially increase the prevalence of problem gamblers. Nonetheless, upon the City's approval of the Tribe's development plans, the Tribe has agreed in the MSA to make a one-time $40,000 contribution for the establishment of a problem gambling fund; and every year thereafter the Tribe shall make a $40,000 annual contribution to help fund local problem gambling diversion, assistance, and counseling programs (**Appendix D** of the Draft EIS/TEIR). With implementation of the Tribe's contributions as agreed upon in the MSA, no potential adverse impacts to regional problem gambling would occur.

Crime

There is a general belief that the introduction of legalized gambling into a community increases crime. However, this argument is based more on anecdotal evidence rather than empirical evidence. Casinos, by their nature, increase the volume of people entering a given area. Whenever large volumes of people are introduced into an area, the volume of crime would also be expected to increase. This is true of any large-scale development. Taken as a whole, literature on the relationship between casino gambling and crime rates suggests that communities with casinos are as safe as communities without casinos. The National Opinion Research Center (NORC, 1999) found that insufficient data exists to quantify or determine the relationship between casino gambling within a community and crime rates.

Alternative A would introduce a large number of patrons and employees into the community on a daily basis. As a result, under Alternative A, criminal incidents would be expected to increase in the project area, particularly at the Project Site, as with any other development of this size. However, increased tax revenues resulting from Alternative A would fund expansion of law enforcement services required to accommodate planned growth. Thus, Alternative A would not result in significant adverse effects associated with crime.

Community Impacts

Public Schools

Employees that relocate to Barstow under Alternative A would increase the number of kindergarten through 12th grade students enrolled in the Barstow Unified School District (BUSD). As discussed in **Subsection 3.6.1**, enrollment in the BUSD has increased by 0.8 percent over the past decade from 6,720 students in 2000/2001 to 6,774 students in 2008/2009. The average class size in the BUSD has decreased over the past decade from 27.5 in 2000/2001 to 26.0 in 2008/2009, a 5.4 percent decrease. Based on

historical trends in BUSD enrollment and teacher employment, BUSD would have a 2013/2014 enrollment of 6,799 and a 2014/2015 enrollment of 6,804. If teacher employment rates remains consistent with past trends, the average class size in the BUSD would be 25.3 in the 2013/2014 school year, and 25.1 in the 2014/2015 school year. The portion of the Barstow population enrolled in BUSD is determined by taking the 2008/2009 BUSD enrollment and dividing by the population of Barstow as of January 1, 2009 (24,174 people), which results in a rate of 28 percent. The BUSD boundaries encompass a large expanse of unincorporated San Bernardino County, in addition to Barstow. Enrollment in the BUSD is characterized by a large population residing in neighboring unincorporated areas of San Bernardino County. As discussed in the Employment section above, given the projected unemployment rate, and the dynamics of the local labor market, San Bernardino County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative A. As such, it is not anticipated that a significant number of employees would relocate to the area to accept a position at the Project Site. ~~Assuming that all projected new employees would relocate to an area within BUSD boundaries, yields a conservative analysis of the potential impacts to the BUSD. As discussed under the direct employment impact analysis, in 2014 Alternative A is estimated to result in the relocation of approximately 167 employees to the San Bernardino County region. Applying the enrollment rate, Alternative A is projected to result in a maximum of 47 new students requiring enrollment in BUSD in 2014.~~ Given that any anticipated new students would be distributed across all grade levels ~~between~~ from kindergarten through the continuation school, ~~47 new~~the limited number of potential new students would be considered a nominal impact on the BUSD. The BUSD would likely collect additional tax revenue from the families of new students and would use these taxes to hire additional teachers to meet additional demand, if necessary. Therefore, potential increased enrollment would have a nominal effect on the ability of BUSD to provide education services at existing levels. Additionally, in accordance with Section 5(A) of the MSA, the Tribe shall make payments to the BUSD equal to the service, development, and impact fees which the District would receive if the parcels were not taken into trust. With implementation of the MSA, Alternative A would not result in adverse impacts to San Bernardino County public schools.

Other Public Facilities

Effects to services provided by libraries, parks, and other public amenities could result if frequented by employees or patrons from Alternative A. San Bernardino County contains approximately 30 library branches, several parks, and several other public amenities in a number of cities. Barstow contains one branch of the San Bernardino County Library system, eight parks, one public fitness center, and a community center. Due to the entertainment nature of Alternative A, it is not expected that patrons would substantially increase demand on libraries, parks, or other public amenities. As discussed in the competition section below, the primary market for Alternative A is vehicle traffic passing through to Nevada. Employees relocating to San Bernardino County for employment opportunities would demand some new usage of public facilities. As discussed in the Employment impact section, employees would be dispersed throughout the County, and effects to public facilities would be less than significant.

Environmental Justice

An environmental justice impact would result if any impact within the scope of this document disproportionately affected an identified minority or low-income community or Native American tribe. Section 3.6 identifies minority and low-income communities within the affected environment of each potential project site and casinos operated by tribes within the competitive gaming market of each alternative. This section analyzes the location and status of identified communities of concern compared to the effect and nature of project impacts, and effects to competing tribal casinos. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* provides direction on how to analyze the impacts of actions on low-income and minority populations.

Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population (EPA, 1998).

Minority and Low-Income Communities

Subsection 3.6.3 surveys local populations that could be affected by development of Alternative A at the Barstow site to determine if any minority or low-income populations exist. Three minority communities in Census Tracts 94, 95, and 120 were identified. Census Tracts 94 and 95 are located northeast of the Barstow site and Census Tract 120 is located east of the Barstow site. These Census tracts are characterized predominantly by urban areas. Primary traffic impacts would occur on area highways and intersections/interchanges. Localized impacts on the Barstow site, such as various impacts to land and water resources, would not affect these Census tracts. Regional impacts, such as air quality impacts, would be distributed throughout the region. Alternative A would benefit all communities within proximity of the Barstow site by creating employment opportunities that would be primarily filled by the local labor market. These communities would not be disproportionately adversely impacted. A less than significant effect would result.

Competition

Subsection 3.6.3 identifies the three closest tribal gaming facilities as the San Manuel Indian Bingo Casino located in San Bernardino County approximately 50 miles southwest, the Morongo Casino Resort Spa located in Riverside County approximately 100 miles south, and Havasu Landing Casino located in San Bernardino County approximately 185 miles east. Alternative A would generate $135.5 million in gaming revenue annually, of which 15.4 percent ($20.8 million) would be substituted from the existing gaming market (Michigan Consultants, 2010; **Appendix O** of the Draft EIS/TEIR). Consistent with the market characterization in **Section 3.6**, more than 50 percent of the revenue would be generated from pass-through traffic to and from Nevada and Arizona and additional lodgers. The second largest source of revenue would be generated from the close-radius market. The majority of revenue under Alternative A would be new revenue generated by additional spending by pass-through traffic and residents near the Barstow site. Substitution totaling $20.8 million would be distributed among a variety of existing gaming

facilities from all of the revenue sources, including casino gaming operations and non-gaming operations. This revenue would be diverted from a variety of existing gaming opportunities, including the three existing tribal casinos in the local competitive gaming market, Las Vegas casinos, Primm casinos, and local card rooms. No single gaming facility is expected to be affected disproportionately. Given the substantial levels of gaming wins at these facilities annually, declines from a substitution effect of this magnitude would have a minimal, if any, adverse effect on operation. In fact, the addition of another casino to the regional gaming market could contribute to the overall growth of the market. This would be a beneficial impact.

4.6.2 ALTERNATIVE B – REDUCED CASINO AND HOTEL DEVELOPMENT

Economic Effects

Expenditures on goods and services for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output.

Construction

Under Alternative B, construction activities are estimated to cost approximately $182.9 million, which is expected to generate a one-time total output of approximately $160.5 million within the County (**Table 4.6-1**). Direct output was estimated to total approximately $117.6 million, of which approximately $114.7 million (98 percent) would be attributed to the construction industry. Indirect and induced outputs were estimated to total $16 million and $26.8 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Construction of Alternative B would generate substantial output to a variety of businesses in San Bernardino County in the industries discussed above. Given the location of Alternative B in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Operation

In 2014, Alternative B is estimated to have 1,847,420 annual patrons (Michigan Consultants, 2010). Under Alternative B, the projected revenue for 2014 was estimated to be $126.4 million, which is expected to generate an annual total output of approximately $135.8 million within the County (**Table 4.6-2**). Direct output was estimated to total approximately $105 million, of which approximately $97.5 million (93 percent) would be attributed to the gaming and entertainment industry. Indirect and induced outputs were estimated to total $17.5 million and $13.3, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Operation of Alternative B would generate substantial output to a variety of businesses in San Bernardino County. Given the location of Alternative B in Barstow, the local economy of Barstow, as discussed in

Subsection 3.6.1, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Substitution Effects

Under Alternative B a portion of revenue may be transferred from other local businesses through substitution. As noted in **Section 3.6**, the portion of the gaming market used for the purposes of this analysis was selected based upon proximity to the site as well as potential to capture regional drive-by patrons. As estimated by Michigan Consultants, the anticipated gaming revenue substitution effect under Alternative B would be approximately $18,717,480 (17.0 percent of total projected gaming revenue for the project). Any anticipated substitution effects are likely to diminish after the first year of the project's operation and once local residents experience the casino and return to more typical spending patterns. Similar to Alternative A, this amount, should it occur, represents a negligible portion of total economic activity that would be generated by Alternative B. This impact would be comparable to Alternative A, but to a lesser extent, and would be less than significant.

Taxes

Alternative B would result in a variety of fiscal impacts. Similar to Alternative A, under Alternative B the Tribe would not pay corporate income taxes on revenue or property taxes on tribal land. In addition, Alternative B would increase demand for public services, resulting in increased costs for local governments to provide these services. Tax revenues would be generated for federal, state and local governments from the same activities discussed in Alternative A.

Alternative B would result in the entire area of each of the Barstow site parcels being transferred to trust status for the Tribe. Therefore, approximately $6,634 in property taxes would be lost by local governments including San Bernardino County and the city of Barstow. The MSA would provide for appropriate compensation by the Tribe to Barstow comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope.

For Alternative B, construction activities would generate one-time tax revenues, while operational activities would generate annual revenues to the federal, state, San Bernardino County, and local governments. Construction would result in an estimated $9.6 million in federal tax revenues, and $5.5 million in state/County/local government tax revenues. Operation of Alternative B would result in an estimated $2.1 million in federal tax revenues, and $2.0 million in state/County/local government tax revenues (**Table 4.6-3**) from indirect and induced taxes. Actual annual tax revenues generated by the project may be greater than those indicated above as direct personal income tax is not accounted for in the operational tax revenue estimate.

Similar to Alternative A, Alternative B would generate annual revenues to State and local governments from revenue sharing. As detailed in **Appendix O** of the Draft EIS/TEIR, Alternative B would have an estimated gaming machine revenue of $100.2 million, resulting in Barstow revenue sharing of $4.4 million. Additional payments to Barstow for problem gambling services would total $40,000, similar to

Alternative A. The net generation of revenues to governments would be comparable but to a lesser extent than Alternative A, and is considered a beneficial effect.

Summary of Economic Effects

Construction and operation of the Alternative B would generate substantial economic output to a variety of businesses in San Bernardino County. Given the location of the Proposed Project in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Additionally, Alternative B would generate substantial fiscal impacts to state, County, and local governments. Potential effects due to the loss of state and federal tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased local, state and federal tax revenues resulting from construction and operation of the Proposed Project, and from revenue sharing programs per the tribal compact and the MSA. Overall, Alternative B would result in a beneficial impact to the San Bernardino County economy.

Employment

Investment in construction and operational activities would generate substantial direct employment opportunities and wages, as well as indirect and induced employment opportunities and wages. The IMPLAN model was used to estimate employment opportunities generated by Alternative B.

Construction

Under Alternative B, investment in construction activities would generate a one-time total of approximately 1,068 employment opportunities within the County during the construction phase (**Table 4.6-4**). Direct output was estimated to total approximately 721 employment opportunities, of which approximately 703 (98 percent) would be attributed to the construction industry. Indirect and induced employment opportunities were estimated to result in 120 and 226 employment opportunities, respectively.

Under Alternative B, investment in construction activities would generate one-time total wages of approximately $45.1 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $32.4 million, of which approximately $31.7 million (98 percent) would be attributed to the construction industry. Indirect and induced wages were estimated to total $5.1 million and $7.6 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County. The generation of employment and wages during the construction phase is considered a beneficial effect of Alternative B.

Operation

As calculated through IMPLAN, operation activities associated with Alternative B would generate an annual total of approximately 1,085 employment opportunities captured within San Bernardino County (**Table 4.6-6**). Direct employment impacts were estimated to total approximately 823 job opportunities. Based on employment projections for the Barstow Casino supplied by Michigan Consultants (2010), the anticipated number of job opportunities to be offered at the Casino itself would be 1,038 positions under

Alternative B. Since the direct employment impact anticipated to be captured by San Bernardino County is estimated at 823 new positions, approximately 215 employees are anticipated to be residents of outside regions (1,038 - 823) (**Appendix O** of the Draft EIS/TEIR). Indirect and induced employment opportunities were estimated to total 150 and 112, respectively. Indirect and induced employment opportunities would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Under Alternative B, investment in operational activities would generate annual total wages of approximately $28.2 million within the County (**Table 4.6-6**). Direct wages were estimated to total approximately $18.5 million, of which approximately $16.2 million (88 percent) would be attributed to the gaming and entertainment industry. Indirect and induced wages were estimated to total $5.9 million and $3.8 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County. The generation of employment and wages during the operation phase is considered a beneficial effect of Alternative B.

Summary of Employment Effects

Construction and operation of Alternative B would generate substantial temporary and ongoing employment opportunities and wages that would be primarily filled by the available labor force in Barstow and San Bernardino County. Given the projected unemployment rate, and the dynamics of the local labor market, San Bernardino County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative B. This would result in employment and wages for persons previously unemployed, increasing the ability of the population to provide themselves with health and safety services and contributing to the alleviation of poverty among lower income households. Additionally, in accordance with Section 10 of the MSA, the Tribe shall work in good faith with the City to employ qualified City residents at the Tribe's resort facilities, as well as offer training programs to assist City residents in becoming qualified for positions at the Resort (**Section 5.6**). This is considered a beneficial effect.

Housing

The 2014 County housing market would fulfill the demands for housing under Alternative B. Indirect impacts resulting from growth inducement are discussed further in **Section 4.15** and **Appendix O** of the Draft EIS/TEIR. This impact would be comparable, but to a slightly lesser extent than Alternative A. A significant adverse impact to the housing market would not occur. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

Social Impacts

Social impacts including pathological and problem gambling and crime from Alternative B would be comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope. With implementation of the conditions of the MSA listed in **Section 5.6**, adverse social impacts would not occur.

Community Impacts

Public Schools

Based on the information presented under Alternative A, the enrollment rate within the BUSD is calculated at approximately 28 percent of the total population of Barstow. The direct employment impact discussion determined that in 2014 Alternative B would result in the relocation of approximately 108 employees to the San Bernardino County region. Applying the enrollment rate and assuming all new employees move within the BUSD service area, Alternative B is projected to increase BUSD enrollment by 30 new students in 2014. Given that any anticipated new students would be distributed across all grade levels between kindergarten through the continuation school, 30 new students would be considered a nominal impact on the BUSD service levels. Additionally, the BUSD would likely collect additional tax revenue from the families of new students and would use these taxes to hire additional teachers to meet additional demand, if necessary. Therefore, potential increased enrollment would have a nominal effect on the ability of BUSD to provide education services at existing levels. Additionally, in accordance with Section 5(A) of the MSA, the Tribe shall make payments to the BUSD equal to the service, development, and impact fees which the District would receive if the parcels were not taken into trust. With implementation of the MSA, Alternative B would not result in adverse impacts to San Bernardino County public schools.

Other Public Facilities

Impacts to libraries, parks and other public amenities from Alternative B would be comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope.

Environmental Justice

Minority and Low-Income Communities

Alternative B could affect Census Tracts 94, 95, and 120 identified as minority communities in Alternative A, since both alternatives would be located at the Barstow site. Similar to Alternative A, Alternative B would not result in disproportionately adverse impacts to surrounding communities. Adverse effects to minority and low-income communities would not result.

Competition

The competitive gaming market for Alternative B would be the same as Alternative A, since both alternatives would be located at the Barstow site.

The discussion of net revenues in **Table 4.6-3** identify that Alternative B would generate a gross total of $110.1 million in casino revenue, of which 17.0 percent ($18.7 million) would be substituted from the existing gaming market. Consistent with the market characterization, the largest portions of revenue would be generated from pass-through traffic to and from Nevada and Arizona and close-radius residents. Compared to Alternative A, a larger portion of revenue would come from close-radius residents and a slightly smaller portion from pass-through traffic to and from Nevada. The effect of substitution would be comparable but to a lesser extent than Alternative A. Given the substantial levels of gaming wins at these facilities annually, declines from a substitution effect of this magnitude would have a minimal, if

any, adverse effect on operation. In fact, the addition of another casino to the regional gaming market could contribute to the overall growth of the market. This would be a beneficial impact.

4.6.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Economic Effects

Expenditures on goods and services for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output.

Construction

Under Alternative C, construction activities are estimated to cost approximately $9.0 million, which is expected to generate a one-time total output of approximately $7.6 million within San Diego County (**Table 4.6-1**). Direct output was estimated to total approximately $4.4 million, of which approximately $3.0 million (68 percent) would be attributed to the construction industry. Indirect and induced outputs were estimated to total $1.4 and $1.8 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout San Diego County.

Operation

In 2014, Alternative C is estimated to have 119,763 annual patrons (Michigan Consultants, 2010). Under Alternative C, the projected revenue for 2014 was estimated to be $9.3 million, which is expected to generate an annual total output of approximately $14.2 million within San Diego County (**Table 4.6-2**). Direct output was estimated to total approximately $8.2 million, of which approximately $7.0 million (85 percent) would be attributed to the gaming and entertainment industry. Indirect and induced outputs were estimated to total $3.6 and $2.4 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Substitution Effects

Under Alternative C a portion of revenue may be transferred from other local businesses through substitution. As estimated by Michigan Consultants, the anticipated gaming revenue substitution effect under Alternative C would be approximately 22.0 percent of total projected gaming revenue for the project ($1,743,908). Substitution impacts would be diffused throughout the County because there are already a large number of existing casinos that operate in a competitive environment. It is likely that each of the existing San Diego County casinos would continue to generate positive cash flows. Moreover, anticipated substitution effects are likely to diminish after the first year of the project's operation and once local residents experience the casino and return to more typical spending patterns. Similar to Alternative A, this amount, should it occur, represents a negligible portion of total economic activity that would be generated by Alternative C. The overall amount of the project's revenue derived through substitution is significantly less under Alternative C than it is under Alternative A~~This impact would be comparable, but to a lesser extent than Alternative A~~, and would be considered less than significant.

According to the 2000 Harvard University study described under Alternative A, worst-case non-gaming substitution effects, occurring in rural environments, have shown on average a nine percent decrease in earnings at local restaurants and bars and an increase in earnings in other commercial sectors (Taylor et al., 2000). Although the Los Coyotes Reservation is described as located within a rural area, it is also located within a region characterized by an abundance of existing tribal casino resorts, thus worst case effects as described in the Harvard study would not apply to the Los Coyotes Project Site. Alternative C would provide a gaming facility alternative for gamers to choose from, rather than providing the first casino to the area. As such, Alternative C would have less than significant potential to disrupt the current competitive environment of the region. Thus, the potential for substitution is limited. Nonetheless, it may be inferred that if substitution occurs it would be at some percentage lower than nine percent. Given that it is not possible to reliably quantify the substitution effects, this analysis does not reduce the economic impacts from the proposed casino and other alternatives to account for substitution effects. Some of the substitution effects would be counteracted by the behavior of casino guests other than local residents. Specifically, as the casino would draw non-residents to the area, the associated increase in new visitor demand for off-site entertainment venues, restaurants, and bars would make up for some area residents choosing to visit Alternative C rather than other local establishments. Thus, less than significant substitution effects would occur.

Taxes

Alternative C would result in a variety of fiscal impacts. In addition, Alternative C would increase demand for public services, resulting in increased costs for local governments to provide these services. Tax revenues would be generated for Federal, State and local governments from the same activities discussed in Alternative A.

Alternative C would be constructed at the Los Coyotes site, which is on land that is already held in trust by the federal government for the Tribe. Therefore, no property taxes would be lost. Tax revenues that would be generated for federal, state, and local governments from economic activity associated with construction and operation of Alternative C, but to a lesser extent than Alternative A, since Alternative C is reduced in size and scope (**Table 4.6-3**). Local governments under Alternative C include San Diego County and cities within San Diego County that would experience economic activity as a result of Alternative C. Construction would result in an estimated $611,011 in federal tax revenues, and $420,425 in state/County/local government tax revenues. Operation of Alternative C would result in an estimated $478,979 in federal tax ~~revenues,~~revenues and $396,899 in state/County/local government tax revenues (**Table 4.6-3**) from indirect and induced taxes. Actual annual tax revenues generated by the project may be greater than those indicated above as direct personal income tax is not accounted for in the operational tax revenue estimate. The net generation of revenues to governments would be less than Alternative A, but would still be considered a beneficial effect.

Summary of Economic Effects

Construction and operation of the Alternative C would generate substantial economic output to a variety of businesses in San Diego County. Additionally, the Proposed Project would generate substantial fiscal impacts to state, County, and local governments. Overall, the Alternative C would result in a beneficial impact to the San Diego County economy.

Employment

Investment in construction and operational activities would generate substantial direct employment opportunities and wages, as well as indirect and induced employment opportunities and wages. The source of direct, indirect, and induced employment opportunities and wages would be similar to those for economic output, as discussed above. The IMPLAN model was used to estimate employment opportunities generated by Alternative C.

Construction

Under Alternative C, investment in construction activities would generate a one-time total of approximately 47 employment opportunities within San Diego County (**Table 4.6-4**). Similar to Alternative A, the number of employees would be equivalent to the number of person-years available from wages. A person-year is defined as the amount of labor one full-time employee can complete in a calendar year. For example, two half-time employees working for a year would constitute one person-year. Direct output was estimated to total approximately 26 employment opportunities, of which approximately 20 (77 percent) would be attributed to the construction industry. Indirect and induced employment opportunities were estimated to result in a negligible number of new employment opportunities.

Employment opportunities generated from construction and operation of Alternative C would result in wage generation. Wage totals include hourly and salary payments as well as benefits including health and life insurance and retirement payments. Under Alternative C, investment in construction activities would generate one-time total wages of approximately $2.2 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $1.3 million, of which approximately $0.94 million (72 percent) would be attributed to the construction industry.

Operation

Similar to Alternative A, employment opportunities generated from the operation of Alternative C would include entry-level, mid-level, and management positions. **Table 4.6-5** shows examples of employment opportunities typically offered by tribal casino and resort facilities. Average salaries offered are expected to be consistent with or greater than those of other tribal gaming facilities and competitive in the local labor market.

As calculated through IMPLAN, operation activities associated with Alternative C would generate an annual total of approximately 108 employment opportunities captured within San Diego County (**Table 4.6-6**). Direct employment impacts were estimated to total approximately 68 job opportunities. Indirect and induced employment opportunities were estimated to total 23 and 17, respectively. Indirect and induced employment opportunities would be dispersed and distributed among a variety of different industries and businesses throughout San Diego County.

Under Alternative C, operation activities associated with Alternative C would generate annual total wages of approximately $3.5 million within San Diego County (**Table 4.6-6**). Direct wages were estimated to

total approximately $1.7 million, of which approximately $1.3 million (76 percent) would be attributed to the gaming and entertainment industry. Indirect and induced wages were estimated to total $1.1 and $0.7 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

In 2009, San Diego County had a labor force of 1,557,369 people, of which 9.7 percent (151,229 people) of the labor force was unemployed (Bureau of Labor Statistics, 2009). In 2009, the U.S. unemployment rate averaged 9.3 percent; lower than the unemployment rate in San Diego County. Since 2000, the labor force of San Diego County has increased by a rate of 1.1 percent each year. According to the Council of Economic Advisers, it is projected that the U.S. will observe an approximate 6.5 percent unemployment rate in 2014 (Council of Economic Advisers, 2010). For the purposes of this analysis, it is assumed that the unemployment rate for San Diego County will follow a similar trend to what has been projected for the U.S., and that the County will experience an unemployment rate of 6.9 percent in 2014 and a labor force of 1,644,929 people (**Appendix O** of the Draft EIS/TEIR; **Table 4.6-10**).

TABLE 4.6-10
PROJECTED SAN DIEGO COUNTY LABOR MARKET

2014	
Labor Force	1,644,929
Unemployment (Rate)	113,500 (6.9%)

Source: AES, 2010.
Note: 2014 Labor market considers direct, indirect, and induced employment.

A portion of new employment opportunities would be filled by people in the County that are currently employed, thereby freeing up existing employment opportunities for other workers. For reasons described above under *Economic Effects*, Alternative C is not expected to result in significant permanent job loss elsewhere due to substitution effects.

Summary of Employment Effects

Construction and operation of Alternative C would generate substantial temporary and ongoing employment opportunities and wages that would be primarily filled by the available labor force in San Diego County. Given the projected unemployment rate, and the dynamics of the local labor market, San Diego County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative C. This would result in employment and wages for persons previously unemployed, increasing the ability of the population to provide themselves with health and safety services and contributing to the alleviation of poverty among lower income households. This is considered a beneficial effect.

Housing

As discussed in **Subsection 3.6.2**, in 2010 the vacancy rate in San Diego County was slightly lower than the State. In January 2010, there were 1,154,228 housing units in San Diego County, of which 4.4 percent (50,786 units) were vacant. Based on the information presented in **Section 3.6.2**, it was

determined that the total number of housing units increases annually by approximately 1.1 percent, while the percentage of vacant units remains relatively stable and tends to increase annually by approximately 0.004 percent. Accordingly, in 2014, the San Diego County housing market is projected to have 1,205,858 total units and 53,450 vacant units (**Table 4.6-11**).

Based on regional housing stock projections, and current trends in San Diego County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative C. Therefore, Alternative C is not expected to stimulate regional housing development. A significant adverse impact to the housing market would not occur. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

TABLE 4.6-11
SAN DIEGO COUNTY 2014 HOUSING MARKET

Housing Units	2014
Units	1,205,858
Occupied Units	1,152,438
Vacant Units	53,420
% Vacant	4.43%
Source: California Department of Finance, 2010; AES, 2010.	

Social Impacts

Social impacts including pathological and problem gambling and crime from Alternative C would be comparable but to a lesser extent than Alternative A, since Alternative C is reduced in size and scope. Additionally, a Tribal compact with the State would include provisions for contribution to problem gambling addiction treatment programs under Alternative C. As such, significant adverse impacts to problem gambling and crime would not be anticipated to occur.

Community Impacts

Public Schools

As discussed in **Subsection 3.6.4**, in 2008/2009 the Warner Unified School District (WUSD) had an enrollment of 266 with a student to teacher ratio of 15.3:1. Given the small magnitude of employee opportunities generated from Alternative C, the potential exists for the demand of only a few new students. At existing enrollment levels new students from Alternative C would have a nominal effect on the ability of WUSD to provide services at current levels. This can be demonstrated by the fact that for current student-to-teacher ratios to correspond with State rates, enrollment would have to increase by approximately 90 students. This effect would be comparable but to a lesser extent than Alternative A. An adverse impact to San Diego County public schools would not occur.

Other Public Facilities

Effects to services provided by libraries, parks and other public amenities from Alternative C would be comparable but to a lesser extent than Alternative A, since Alternative C would generate fewer employment opportunities.

Environmental Justice

Minority and Low-Income Communities

The Los Coyotes Tribe has been identified as a minority and low-income community in the Los Coyotes Reservation site area. Due to their close proximity to the site and connection with the project, potential socioeconomic effects would be most pronounced for the Los Coyotes Tribe. As such, the Los Coyotes Tribe would have the greatest potential to be disproportionately affected by any potential increase in crime or problem gambling as these impacts are considered local in nature. However, the Los Coyotes Tribe would also experience the beneficial impacts of Alternative C, including increased economic output, employment, and wages as described under the purpose and need for the Proposed Action in **Section 1.2**. The beneficial impacts of Alternative C are anticipated to outweigh potential adverse impacts of Alternative C for the Los Coyotes Tribe. As such, Alternative C would result in an overall beneficial impact to the Los Coyotes Tribe.

Other than the Los Coyotes Tribe, no minority or low-income communities were identified within proximity of the Los Coyotes site; therefore, Alternative C would not result in any disproportionately adverse impacts to other surrounding communities. A less than significant effect would result.

Competition

~~San Diego County consists of~~There are approximately 26 existing casinos and two proposed casinos within San Diego County. The nearest gaming facilities to the Los Coyotes site are the Santa Ysabel Casino located approximately 11 miles southwest, the Cahuilla Creek Casino located approximately 25 miles to the north, and Harrah's Rincon Casino and Resort and Valley View Casino, which are both located 25 miles to the west.

Alternative C would generate $9.2 million in casino revenue, of which 22 percent ($2.0 million) would be substituted from the existing gaming market. This revenue would be diverted from a variety of existing casino opportunities, including the nine existing tribal casinos in the competitive gaming market and local card rooms. No one gaming facility is expected to be affected disproportionately. Given the substantial casino revenues generated at these facilities annually, declines from a substitution effect of this magnitude would have a minimal adverse effect on operation. In fact the addition of another casino to the regional gaming market could contribute to the overall growth of the market. This would be a beneficial effect.

4.6.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Economic Effects

Expenditures on goods and services for construction and operational activities would generate direct economic output, as well as indirect and induced economic output.

Construction

Alternative D consists of the construction of a campground instead of a casino ~~and hotel~~ and would be located at the Los Coyotes Reservation site. One-time direct impacts from construction of Alternative D are shown in **Table 4.6-1**. The total cost of construction, including all land, hard, and soft costs, is estimated to be approximately $2.4 million. Expenditures on goods and services from construction activities are estimated to generate a one-time total output of $2.8 million in San Diego County. Direct output was estimated to total approximately $1.6 million, of which approximately $1.5 million (94 percent) would be attributed to the construction industry. Indirect and induced output, were estimated to total $0.54 and $0.67 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Operation

Under Alternative D, projected revenue for 2014 was estimated to be $0.680 million, which is expected to generate an annual total output of approximately $1.0 million within the County (**Table 4.6-2**). Direct output was estimated to total approximately $0.603 million, of which 100 percent would be attributed to the accommodation and food services industry. Indirect and induced output was estimated to total $0.237 and $0.212 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Substitution Effects

As stated in **Appendix O** of the Draft EIS/TEIR, data related to the projected substitution effect of Alternative D was not available at the time of this analysis. The projected substitution effect depends on how many and what type of other establishments are within the same market area as the campground, disposable income levels of local residents and their spending habits, as well as other economic and psychological factors affecting the consumption decisions of local residents. To the extent that the campground acts as a destination location, substitution effects are diffused, as the campground would draw patrons from a widespread area. ~~Quantifying the substitution effects of the campground would require knowledge of how residents spend their recreation~~ ~~speculate the potential substitution effects of Alternative D. However, i~~It should be noted that~~, due to the expansive availability of~~ there are numerous existing campgrounds in the region~~, Alternative D would provide an additional campground alternative for visitors to choose from, rather than providing the first campground to the area~~. As such, any substitution effects resulting from Alternative D would be greatly diffused over the region and would not result in adverse environmental effects. ~~have~~ ~~less than significant potential to disrupt~~ ~~to the current competitive environment of the region and the potential for substitution is limited.~~

Taxes

Under Alternative D, all land is located on land held in trust for the Tribe by the federal government. As such, no further property tax loss would occur with the project. For Alternative D, construction activities would generate one-time tax revenues, while operational activities would generate annual revenues to the federal, state, county, and local governments. Construction would result in an estimated $222.8 thousand in federal tax revenues, and $127.2 thousand in state/county/local government tax revenues. Operation of Alternative D would result in an estimated $36,221 in federal tax revenues~~,~~ and $31,997 in state/County/local government tax revenues from indirect and induced taxes (**Table 4.6-3**). This would be a beneficial impact, although to a significantly lesser extent than Alternative C.

Employment

Investment in construction and operational activities would generate negligible employment opportunities and wages. The IMPLAN model was used to estimate employment opportunities generated by Alternative D.

Construction

Under Alternative D, investment in construction activities would generate an annual total of approximately 18 employment opportunities within the County during the construction phase (**Table 4.6-4**). Direct employment was estimated to total approximately 10 employment opportunities, of which all would be attributed to the utilities industry. Indirect and induced employment opportunities were estimated to total three and five, respectively. Indirect and inducted employment opportunities would be dispersed and distributed among a variety of different industries and businesses throughout San Diego County

Under Alternative D, investment in construction activities would generate annual total wages of approximately $1.5 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $953.6 thousand, of which approximately $681.9 thousand (72 percent) would be attributed to the utilities industry. Indirect and induced wages were estimated to total $252.3 and $295.9 thousand, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Operation

Under Alternative D, investment in operational activities would generate a net annual total of approximately nine employment opportunities within San Diego County (**Table 4.6-64**), including six direct employment opportunities. Investment in operational activities under Alternative D would generate total net annual wages of approximately $185.0 thousand within San Diego County (**Table 4.6-64**). This impact would be similar to Alternative C, although to a lesser extent. This would be considered a less than significant impact.

Housing

As described under Alternative C, the 2014 San Diego County housing market could easily fill any demands for housing under Alternative D. Given the small magnitude of employment opportunities anticipated to be generated by Alternative D, Alternative D would result in a negligible, if any, impact to the housing market, and would be less than significant.

Social Impacts

No pathological or problem gambling impacts would result from Alternative D since a casino component would not be included. Impacts to crime would be similar but much reduced when compared to Alternative C given that Alternative D results in a slight increase in patrons and employees in the same region and Alternative C.

Community Impacts

Public Schools

As discussed in **Subsection 3.6.2**, in 2008/2009 the WUSD had an enrollment of 266 with a student to teacher ratio of 15.3:1. Given the small magnitude of employee opportunities generated from Alternative D, the potential exists for the demand of only a few new students. At existing enrollment levels new students from Alternative D would have a nominal effect on the ability of WUSD to provide services at current levels. This can be demonstrated by the fact that for current student-to-teacher ratios to correspond with State rates, enrollment would have to increase by approximately 90 students. This effect would be less than Alternative C within San Diego County.

Other Public Facilities

Effects to services provided by libraries, parks and other public amenities from Alternative D would be less than Alternative C, since Alternative D would generate fewer employment opportunities.

Environmental Justice

Minority and Low-Income Communities

The Los Coyotes Tribe has been identified as a minority and low-income community in the Los Coyotes Reservation site area. Due to their close proximity to the site and connection with the project, potential socioeconomic effects would be most pronounced for the Los Coyotes Tribe. As such, the Los Coyotes Tribe would have the greatest potential to be adversely affected by any potential increase in crime as this impact is considered local in nature. However, the Los Coyotes Tribe would also experience the beneficial impacts of Alternative D, including increased economic output, employment, and wages. The beneficial impacts of Alternative D would be anticipated to outweigh potential adverse impacts of Alternative D for the Los Coyotes Tribe, but to a lesser degree than Alternative C. As such, Alternative D would result in a less than significant impact to the Los Coyotes Tribe.

Other than the Los Coyotes Tribe, no minority or low-income communities were identified within proximity of the Los Coyotes site; therefore, Alternative D would not result in any disproportionately adverse impacts to other surrounding communities. A less than significant effect would result.

Competition

Since Alternative D would consist of a campground rather than a casino, no competitive impacts would occur to the existing gaming market.

4.6.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of either the Barstow or the Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.7 TRANSPORTATION/CIRCULATION

This section identifies the direct effects to transportation and circulation that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.7**. Cumulative effects are identified in **Section 4.13**. Indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Measures to avoid and, if necessary, mitigate for adverse effects are presented in **Section 5.2**.

4.7.1 ANALYSIS METHODOLOGY

The project would result in the addition of vehicle traffic to local roadways and intersections. A traffic impact analysis (TIA) was prepared for Alternatives A and B by Linscott, Law & Greenspan Engineers (LL&G) and a TIA was prepared for Alternative C by Kunzman Associates (Kunzman); both TIAs are provided in **Appendix H** of the Draft EIS/TEIR. Additionally, a Supplemental Traffic Information Memorandum was prepared and is included in **Appendix Q** of the Final EIS/TEIR. This section incorporates the results of these studies and describes the number of trips that would be generated by Alternatives A, B, C, and D and any potential adverse effects that would occur to the roadway system within the study area. Traffic effects resulting from Alternative D were analyzed using trip generation rates provided by the International Traffic Engineer's *Trip Generation Manual* 8th Edition, 2009.

Consultation

In order to determine the appropriate study area and analysis methodologies for the project, a series of scoping discussions was held with the California Department of Transportation (Caltrans), the City of Barstow (City), San Bernardino Associated Governments (SANBAG), and the Southern California Association of Governments. In addition, San Diego County was contacted concerning the study area and analysis methodologies for Alternatives C and D.

Study Area

To assess changes in traffic conditions, eleven intersections, four roadway segments, and four freeway segments were evaluated for Alternatives A and B; four intersections and one roadway segment were evaluated under Alternative C. Detailed descriptions of study intersections and roadway segments for the Barstow and Los Coyotes sites are included in **Section 3.0** and **Appendix H** of the Draft EIS/TEIR.

Methodologies

Identification of the study areas, including intersections, roadway segments, and freeway segments, was based on an estimate of the two-way traffic volumes near the project sites. Roadway segments have been included within the analysis when the anticipated project-related traffic volume exceeds 50 two-way trips in the peak hours. Freeway segments have been included when the project-related traffic volume exceeds 100 two-way peak hour trips. In accordance with *Caltrans Guide for the Preparation of Traffic Impact Studies*, impacts to freeway facilities are analyzed under cumulative conditions in **Section 4.13**. Based on the methodology recommended in the San Bernardino County Congestion Management Program (CMP),

impacts to transportation facilities further than five miles from the project sites are not analyzed. In accordance with the Municipal Service Agreement (MSA) between the Tribe and the City, the traffic impact study prepared for the proposed alternatives is consistent with the requirements of the CMP.

Peak Hour

Traffic analyses for Alternatives A, B, and C were completed using weekday mid-day (noon to 2 PM.) and evening (4 PM to 6 PM peak hour), and Saturday mid-day (noon to 2 PM) and evening (5 PM to 7 PM) peak hour traffic volumes. Sunday peak hour traffic analyses was completed for study area intersections, ramp diverge operations, and traffic queuing lengths for Alternatives A and B. Sunday analyses showed the LOS and delay at study intersections and traffic queuing lengths were less than weekday and Saturday LOS, delays, and queuing lengths, therefore only weekday and Saturday conditions are presented for operations at these facilities. Ramp diverge operation lengths were shown to be greater during the Sunday PM peak hour than the weekday or Saturday mid-day or PM peak hour, and therefore are presented below. Traffic analyses for the non-gaming alternative (Alternatives D) was completed using weekday morning and evening peak hour traffic volumes.

Trip Generation

Casino

Trip generation rates for the alternatives relate land uses to the number of vehicles entering or exiting the site. Where applicable, trip generation is derived from trip rates provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. However, a more customized approach has been developed to characterize trip generation rates for the proposed casino. The traditional reference from which to determine trip generation, the ITE *Trip Generation Manual*, does include trip generation information for casinos; however, this information is based on only a few facilities, such as those found in Reno, Las Vegas, or Atlantic City. Indian Gaming casinos have unique trip generation characteristics when compared to traditional casinos, due primarily to isolated locations and types of gaming offered. Although trip generation characteristics for traditional casinos were not used directly to establish trip generation for the proposed gaming alternatives, information from these sources was utilized to help verify trip generation assumptions. The approach used to establish trip generation rates for this analysis was to investigate trip generation characteristics at Indian casinos, and utilize information within traffic studies for comparable developments. Methodology used to establish trip generation for the proposed gaming alternatives is described in detail in **Appendix H** of the Draft EIS/TEIR.

Hotel

Trip generation for the hotel components under Alternatives A and B were obtained from the ITE *Trip Generation Manual*. The analysis assumes that the internal interaction between the casino and hotel would account for a 75 percent reduction in hotel trips. A 75 percent reduction in hotel trips due to internal capture is consistent with the *Mississippi Gulf Coast Transportation Management Plan for Waterfront Development*, 1993.

Drive-in Restaurant

The ITE trip generation rate for "high-turnover (sit-down) restaurant" was used to determine the number of potential trips associated with the proposed drive-in restaurant for Alternative A and B.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternatives A and B, peak hour traffic counts of the existing directional distribution of traffic for areas in the vicinity of the project site and information on future development and traffic impacts in the area was reviewed. The distribution of new trips generated by Alternatives A and B and is provided in **Figure 4.7-1**.

Assessment Criteria

Determination of adverse effects is based on acceptable LOS, as determined by the *Caltrans Guide for the Preparation of Traffic Impact Studies* and local policies. Applicable LOS thresholds for the Barstow and Los Coyotes sites are described below.

Barstow Site

The City's General Plan states that peak hour intersection operations of LOS D or better are acceptable. Therefore, LOS E or F on City intersections is considered unacceptable. Intersections outside the jurisdiction of the City were held to the City's standard, which is consistent with Caltrans Interstate 15 (I-15) interchange intersections standard.

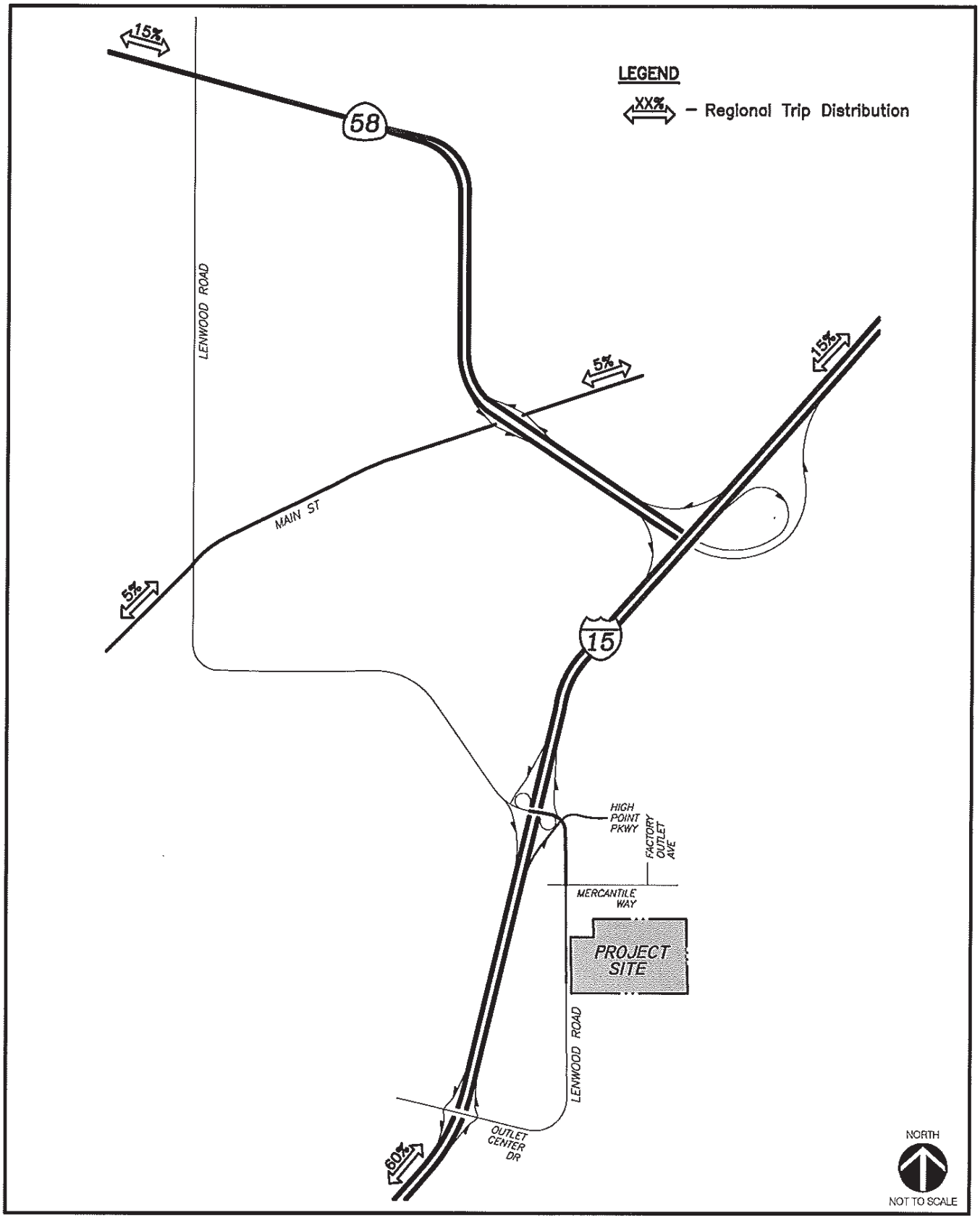
An adverse effect would occur if a roadway exceeds, either individually or cumulatively, an LOS standard established by the San Bernardino County Congestion Management Agency for designated roadways.

The congestion management program (CMP) for San Bernardino County, which was prepared by SANBAG in cooperation with various agencies including the Caltrans, considers LOS E on freeway facilities to be acceptable. Worsening of freeway conditions to LOS F is considered unacceptable within the Barstow Site study area, except where an existing LOS F condition is identified in the CMP document (LL&G, 2010).

Los Coyotes Site

The San Diego County General Plan states that peak hour intersection operations of LOS D or better are generally acceptable. Therefore, LOS E or F on San Diego County roadways is considered unacceptable.

Caltrans typically would not seek transportation mitigation from a project if the LOS of affected facilities is C or better after the addition of project related traffic. Therefore, because specific LOS thresholds have not been developed for state highway facilities in the Los Coyotes Study area, LOS of D or worse shall be considered deficient.



SOURCE: Linscott Law & Greenspan Engineers, 5/4/2010; AES, 2011

Figure 4.7-1

Barstow Casino and Hotel Primary Trip Distribution

Traffic Signal Warrant Analysis

Traffic signal warrants establish minimum conditions under which a traffic signal should be considered as an option to address traffic issues at a particular intersection. Traffic signals may be justified (warranted) when traffic operations fall below acceptable thresholds. Satisfying a traffic signal warrant allows Caltrans or the appropriate jurisdiction make an informed decision on whether to install a traffic signal. Traffic volumes at the unsignalized study intersections were assessed using the peak hour warrant, as specified in the Manual of Uniform Traffic Control Devices 2003 California Supplement (California MUTCD). The peak hour warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day. This warrant is generally the first warrant to be satisfied. The warrant applies to traffic conditions during a one-hour peak that are sufficiently high such that minor street traffic experiences excessive delay in entering and crossing the street.

4.7.2 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Site Access

Access to the Casino project site is proposed via one driveway located along Lenwood Road approximately 300 yards south of the existing Hampton Inn Driveway. The project driveway would have full turning access to the project site and would satisfy the City's corner sight distance standards. The intersection of Lenwood Road / Project Access would be signalized when Caltrans warrants are met.

Construction Traffic

Construction of Alternative A would require truck trips for the export of fill, import of materials and equipment, and daily construction workers trips. Traffic impacts resulting from the construction of Alternative A construction activities would be temporary and intermittent in nature and would generally occur during off-peak traffic hours (5 AM to 6 AM and 10 AM to 4 PM). Construction activity impacts would be concentrated on Lenwood Road in the immediate vicinity of the Barstow site. Traffic-related construction impacts may include traffic delays, one-way traffic control, temporary road closures, and traffic detours. Daily construction trips are estimated to be approximately 300, including construction worker trips, material delivery, equipment delivery, and fill exportation. Traffic generated by construction of Alternative A would be less than operational traffic, which, as discussed below, does not lead to a decrease in LOS below established thresholds. In addition, construction traffic is temporary; therefore, significant adverse effects associated with construction traffic would not occur.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative A is shown in **Table 4.7-1**. Methodology used to determine trip generation is described in **Subsection 4.7.1**.

~~*Pass-by*~~*Diverted-link Trips*

Not all of the traffic to and from Alternative A would be newly generated trips, some trips will be trips that are on the road going to a different destination and stop at the proposed facilities; these types of trips are referred to as "~~pass-by~~diverted-link" trips. The traffic volume on I-15 in the City of Barstow is 60,000 vehicles per day (Caltrans, 2009). A large number of these trips are traveling to Las Vegas and would have a tendency to stop at the proposed gaming facility. Accordingly, trip generation calculated for Alternative A has been adjusted to consider the number of trips that already exist on the roadway and would visit the proposed facility.

TABLE 4.7-1
ALTERNATIVE A PEAK HOUR TRIP GENERATION

Proposed Land Use	Trips per unit	Weekday				Saturday			
		Mid-day		PM		Mid-day		PM	
		Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips
Casino	229.02 KSF	3.95	905	4.95	1,134	6.90	1,580	6.90	1,580
Hotel[1]	160 Rooms	0.15	24	0.15	23	0.18	29	0.18	29
Drive-in Restaurant	5.86 KSF	11.52	67	11.15	66	14.07	83	14.07	83
Total Number of Trips		__	*996*	__	*1,223*	__	*1,692*	__	*1,692*
Casino ~~Pass-by~~Diverted-link Trips (40%)[3]		__	361	__	453	__	632	__	632
Restaurant ~~Pass-by~~Diverted-link Trips (20%)[4]			13		13		17		17
Total New Trips			**622**		**757**		**1,043**		**1,043**

Notes:
[1] Casino trip generation rate based on Shingle Springs Rancheria Interchange Transportation Circulation Report dated April 2002.
[2] Hotel trip generation rate based on ITE Trip Generation Manual 8th Edition Rate with 75 percent reduction to account for internal trips between the hotel and casino.
[3] Casino ~~pass-by~~diverted-link percentages are based on Shingle Springs Rancheria Interchange Transportation/ Circulation Report dated April 2002.
[4] Restaurant ~~pass-by~~diverted-link percentages for high-turnover sit-down restaurants are based on SANDAG Not So Brief Guide to Vehicle Trip Generation Rates, April 2002.
KSF = thousand square feet.
Source: LL&G, 2010.

The traffic study prepared for Alternative A conservatively uses a casino ~~pass-by~~diverted-link capture rate of 40 percent and a restaurant ~~pass-by~~diverted-link capture rate of 20 percent based on information validated by data contained in previous traffic studies prepared for comparable casino developments. A 40 percent casino ~~pass-by~~diverted-link capture rate equates to a 4.7 percent capture rate from I-15. A capture rate from I-15 of between three and five percent is consistent with the capture rates of the casinos used to determine the trip generation rate applied to the gaming alternatives. The methodology used to establish ~~pass-by~~diverted-link capture rates for Alternative A is described in **Appendix H** of the Draft EIS/TEIR. **Table 4.7-1** shows the net new trips added to the local roadway network under Alternative A after ~~pass-by~~diverted-link trip reduction.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative A, peak hour traffic counts of the existing directional distribution of traffic for areas in the vicinity of the project site, and information on future development and traffic impacts in the area was reviewed. The distribution of new trips generated by Alternative A is shown in **Figure 4.7-1**.

Background Traffic Conditions

No Project Traffic Volumes

To assess opening year traffic conditions, existing traffic (refer to **Section 3.7**) is combined with area-wide growth and other approved developments in the project area (refer to table 8-1 of the TIA provided in **Appendix H** of the Draft EIS/TEIR). To account for area-wide growth, 2013 opening year traffic volumes have been calculated using a conservative four percent annual growth rate of existing traffic volumes. The analysis of cumulative developments and area-wide growth in the build-out year~~,~~ and the associated increase in existing traffic within the study area is provided in **Appendix H** of the Draft EIS/TEIR.

Background Intersection Operations

Table 4.7-2 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections under background traffic conditions in the opening year 2013 without the addition of project related traffic. As shown in the table, each of the study intersections would operate at an acceptable LOS of C or better under background traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections are provided in the TIA (**Appendix H** of the Draft EIS/TEIR).

Background Roadway Segments

Volume to capacity ratios and LOS for background conditions in the year 2013 have been calculated for the study area roadway segments and are shown in **Table 4.7-3**. All of the study roadway segments are projected to operate within an acceptable LOS under background traffic conditions without the addition of Alternative A.

TABLE 4.7-2
BACKGROUND INTERSECTION CONDITIONS – 2013 NO PROJECT

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	12.8	B	11.4	B	12.~~3~~5	B	11.1	B
2. Lenwood Rd./Main St.	TS	30.8~~1.2~~	C	40.~~1~~3	D	35.~~5~~6	D	33.~~6~~7	C
3. Main St./SR-58 EB Ramps	TS	3.~~3~~4	A	3.8	A	3.~~8~~9	A	3.~~3~~4	A
4. Main St./SR-58 WB Ramps	TS	11.~~2~~3	B	~~17.8~~18.0	B	14.8	B	14.7	B
5. Lenwood Rd./I-15 SB Ramps	TS	~~11.9~~12.0	B	12.5~~4~~	B	12.~~4~~5	B	~~11.9~~12.0	B
6. Lenwood Rd./I-15 NB Ramps	TS	16.3~~2~~	B	16.~~7~~8	B	~~18.7~~19.0	B	15.~~7~~8	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	9.8	A	10.1	B	11.~~5~~6	B	10.~~7~~8	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	~~8.9~~9.0	A	8.~~6~~7	A	9.3	A	8.9	A
9. Lenwood Rd./Mercantile Way	TS	30.~~7~~8	C	27.~~4~~5	C	~~31.5~~32.0	C	31.~~5~~9	C
10. Factory Outlet Ave/Mercantile Way	OWSC	8.~~9~~7	A	8.9	A	8.8	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Source: LL&G, 2010.

TABLE 4.7-3
BACKGROUND ROADWAY SEGMENT CONDITIONS – 2013 NO PROJECT

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.45	A
Lenwood	Mercantile Way to Project Access	3U	21,000	0.13	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.12	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.10	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Background Freeway Segments

Volume to capacity ratios and LOS for background conditions in the year 2013 have been calculated for the study area freeway segments and are shown in **Table 4.7-4**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under background traffic conditions.

TABLE 4.7-4
BACKGROUND FREEWAY SEGMENT CONDITIONS – 2013 NO PROJECT

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~416~~446	0.~~358~~337	B	B
SR-58 to Lenwood Road	4	9,200	0.273	0.206	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.380	0.351	B	B
I-15 Southbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.501~~486~~	0.4~~17~~424	B	B
SR-58 to Lenwood Road	3	6,900	0.405	0.345	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.467	0.387	B	B
Notes: V/C = volume to capacity ratio Source: LL&G, 2011~~0~~.						

Traffic Conditions Plus Alternative A

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative A was added to background year traffic volumes.

Background Plus Alternative A Intersection Operations

Table 4.7-5 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under background plus Alternative A traffic conditions with implementation of Alternative A. Weekday and Saturday peak hour turning volumes at each of the study intersections under background plus Alternative A traffic conditions are provided within the TIA (**Appendix H** of the Draft EIS/TEIR- Fig-7-2). With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS, except for the following intersection:

- Lenwood Rd./Project Access

Background Plus Alternative A Roadway Segment Operations

Volume to capacity ratios and LOS for the study area roadway segments have been calculated for the opening year of Alternative A opening year have been calculated for the study area roadway segments and are shown in **Table 4.7-6**. With implementation of Alternative A, all of the study roadway segments

are projected to operate within an acceptable LOS under background plus Alternative A traffic conditions in the opening year 2013.

Background Plus Alternative A Freeway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative A traffic conditions have been calculated for the study area freeway segments and are shown in **Table 4.7-7**. With implementation of Alternative A, all of the study freeway segments are projected to operate within an acceptable LOS under background plus Alternative A traffic conditions in the opening year 2013.

TABLE 4.7-5
BACKGROUND PLUS ALTERNATIVE A INTERSECTION CONDITION – OPENING YEAR 2013

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	12.9	B	11.9	B	13.4	B	12.0	B
2. Lenwood Rd./Main St.	TS	31.1	C	41.8	D	36.7	D	34.1	D
3. Main St./SR-58 EB Ramps	TS	4.0	A	4.4	A	4.7	A	4.5	A
4. Main St./SR-58 WB Ramps	TS	11.3	B	17.9	B	14.8	B	14.7	B
5. Lenwood Rd./I-15 SB Ramps	TS	13.1	B	13.1	B	13.6	B	14.2	B
6. Lenwood Rd./I-15 NB Ramps	TS	15.7	B	16.0	B	22.1	B	21.8	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	15.4	C	14.8	B	32.8	D	14.1	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.9	A	9.8	A	10.9	B	11.0	B
9. Lenwood Rd./Mercantile Way	TS	29.1	C	29.3	C	33.6	C	40.3	D
10. Lenwood Rd./ Project Access	OWSC	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.7	A	8.9	A	8.8	A	9.0	A

Notes: TS = traffic signal, OWSC = One-Way Stop Controlled
Bold indicates unacceptable LOS
Source: LL&G, 2010.

Traffic Signal Warrant Analysis

For background plus Alternative A traffic conditions in the opening year 2013, the study area intersections have been evaluated to determine the need for installation of traffic signals as specified in the California MUTCD (FHWA, 2004). A traffic signal is anticipated to be warranted under background plus Alternative A traffic conditions at the following study area intersection:

- Lenwood Road/Project Access

TABLE 4.7-6
BACKGROUND PLUS ALTERNAITVE A ROADWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.66	B
Lenwood	Mercantile Way to Project Access	3U	21,000	0.47	A
Lenwood	Project Access to Outlet Center Drive	2U	14,000	0.33	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.31	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

TABLE 4.7-7
BACKGROUND PLUS ALTERNATIVE A FREEWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~428~~489	0.~~375~~373	B	B
SR-58 to Lenwood Road		9,200	0.304	0.302	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.412	0.384	B	B
I-15 Southbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~503~~550	0.~~436~~467	B	B
SR-58 to Lenwood Road		6,900	0.458	0.454	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.488	0.417	B	B

Notes: V/C = volume to capacity ratio
Source: LL&G, 2011~~0~~.

Ramp Diverge Operations

Ramp diverge operations is a measurement of the ability of a vehicle to enter lane one of a multi-lane roadway. Tables 1, 3, and 14 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis at I-15 NB/SB Off-Ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. The ramp diverge operations were determined to be greatest during the Sunday PM peak-hour. As shown in the Table 14 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would not exceed the County's significance threshold of LOS D; therefore, Alternative A would not have a significant adverse effect on ramp diverge operations at I-15 NB/SB off-ramps to Lenwood Road.

Intersection Queuing Operations

Tables 5, 7 and 16 of **Appendix Q** of the Final EIS/TEIR provide lane queuing length analysis at the I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. Based on the project trip distribution, project trips were only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables there is sufficient capacity to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound off-ramps with or without Alternative A during the buildout year 2013 at the movements in which the project adds trips. The 50th and 95th percentile queue is defined to be the queue length (in vehicles) that has only a 50 percent and 5-percent, respectively, probability of being exceeded during the analysis time period.

The I-15/Outlet Center Road interchange is currently un-signalized. The Highway Capacity Software (HCS) is limited in its ability to measure the queuing results for un-signalized intersections. However, the Caltrans Highway Design Manual 2009 (HDM) provides direction for calculating queues at un-signalized intersections using storage length and number of vehicles per two-minute period per lane. An explanation and formula for this calculation is provided in **Appendix Q** of the Final EIS/TEIR. Tables 5, 7, and 16 provide a queuing analysis at the Outlet Center Drive Off-Ramp location. Based on the project trip distribution, project trips are only added to the I-15 NB Off-Ramp/Outlet Center Drive northbound right-turn movement. As shown in these tables, sufficient capacity is available to serve the buildout year 2013 traffic queues with and without Alternative A project traffic.

Alternative A would not have a significant adverse effect on traffic queuing at I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road.

Transit, Bicycle, and Pedestrian Facilities

Implementation of Alternative A may result in increased use of the Barstow Area Transit System. Through the terms of the MSA, the Tribe shall contribute funding to the City that would compensate for increased use of the City's public services. Increased public use of the Barstow Area Transit System is not anticipated to adversely impact existing service levels, and could contribute additional funding for the system.

No bicycle lanes or pedestrian sidewalks exist in the vicinity of the transportation study area for Alternative A. Alternative A is not projected to generate a substantial increase in bicycling activity or pedestrian trips. The City of Barstow Non-Motorized Circulation Plan identifies Lenwood Road east of I-15 and Main Street as potential future locations for Class I bikeways. However, with the addition of project-related traffic, the LOS along these roadways would remain within acceptable levels. Therefore, development of Alternative A would have no adverse effects on existing or planned bicycle or pedestrian facilities.

Summary of Traffic Impacts

The increase in traffic generated by Alternative A would not contribute to unacceptable traffic operations at any of the study intersections other than the Lenwood Road / Project Access intersection. Without mitigation, the Lenwood Road / Project Access intersection would operate at levels as low as LOS F (**Table 4.7-5**). Additionally, during peak hours there is the potential for southbound left-turns entering the project site to spill over into the southbound through lane, which could result in -queuing that could affect the ability of northbound vehicles to access existing business' driveways to the west (LL&G, 2010). Implementation of mitigation measures provided in **Section 5.7** would restore the Lenwood Road / Project Access intersection to satisfactory operations based City LOS standards; therefore, development of Alternative A would have minimum adverse effect on traffic and circulation.

4.7.3 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Site Access

Access to the project site is proposed via one driveway located along Lenwood Road approximately 300 yards south of the existing Hampton Inn Driveway. The project driveway would have full turning access to the project site and would satisfy the City's corner sight distance standards. The intersection of Lenwood Road / Project Access would be signalized when Caltrans warrants are met.

Construction Traffic

The temporary traffic generated during construction of Alternative B would be less than Alternative A because fill would not be exported from the site. Therefore, Alternative B would not result in significant adverse effects to traffic and circulation during construction.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative B is shown in **Table 4.7-8**. Methodology used to determine trip generation is described in detail in **Subsection 4.7.1**.

~~Pass-by~~Diverted-link Trips

Trip generation calculated for Alternative B has been adjusted to consider the number of trips that already exist on the roadway network without the addition of the project. **Table 4.7-8** shows the net new trips added to the local roadway network under Alternative B after the ~~pass-by~~diverted-link trip reduction. Trip methodology for determining ~~pass-by~~diverted-link trips reduction is discussed under Alternative A.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative B, peak hour traffic counts of the existing directional distribution of traffic for areas in the vicinity of the project site and information on future

development and traffic impacts in the area was reviewed. The distribution of new trips generated by Alternative B is identical to Alternative A and is provided in **Figure 4.7-1**.

TABLE 4.7-8
ALTERNATIVE B PEAK HOUR TRIP GENERATION

Proposed Land Use	Trips per unit	Weekday				Saturday			
		Mid-day		PM		Mid-day		PM	
		Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips
Casino	164.4 KSF	3.95	654	4.95	813	6.90	1,134	6.90	1,134
Hotel	100 rooms	0.15	15	0.15	15	0.18	18	0.18	18
Drive-in Restaurant	5.86 KSF	11.52	67	11.15	66	14.07	83	14.07	83
Casino ~~Pass-by~~Diverted-link Trips (40%)[3]		__	*260*	__	*326*	__	*453*	__	*453*
Restaurant ~~Pass-by~~Diverted-link (20%)[4]		__	*14*	__	*13*	__	*17*	__	*17*
Total New Trips		__	**459**	__	**556**	__	**765**	__	**765**

[1]Casino trip generation rate based on Shingle Springs Rancheria Interchange Transportation Circulation Report dated April 2002.
[2] Hotel trip generation rate based on ITE Trip Generation Manual 8th Edition Rate with 75 percent reduction to account for internal trips between the hotel and casino.
[3] Casino ~~pass-by~~diverted-link percentages are based on Shingle Springs Rancheria Interchange Transportation/ Circulation Report dated April 2002.
[4] Restaurant ~~pass-by~~diverted-link percentages for high-turnover sit-down restaurants are based on SANDAG Not So Brief Guide to Vehicle Trip Generation Rates, April 2002.
KSF = thousand square feet.
Source: LL&G, 2010.

Traffic Conditions Plus Alternative B

Refer to **Subsection 4.7.2** for a description of background traffic conditions for the Barstow study area. To assess the impacts of Alternative B on transportation facilities in the study area, the projected number of trips generated by this alternative was added to background traffic volumes.

Background Plus Alternative B Intersection Operations

Table 4.7-9 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections under background plus Alternative B traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections under

background plus Alternative B traffic conditions are provided within the TIA (**Appendix H** of the Draft EIS/TEIR). With the addition of project-related traffic, each of the study intersections is projected to operate at an acceptable LOS, except for the following intersection:

- Lenwood Rd./Project Access

TABLE 4.7-9
BACKGROUND PLUS ALTERNATIVE B INTERSECTION CONDITION – OPENING YEAR 2013

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	12.9	B	11.7	B	13.2	B	11.3	B
2. Lenwood Rd./Main St.	TS	31.0	C	41.4	D	36.4	D	34.1	D
3. Main St./SR-58 EB Ramps	TS	3.9	A	4.3	A	4.5	A	4.0	A
4. Main St./SR-58 WB Ramps	TS	11.3	B	17.9	B	14.8	B	14.7	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.7	B	12.9	B	13.2	B	12.5	B
6. Lenwood Rd./I-15 NB Ramps	TS	15.7	B	16.2	B	20.8	C	15.8	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	13.3	B	13.1	B	22.3	C	12.3	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.6	A	9.4	A	10.3	B	9.7	A
9. Lenwood Rd./Mercantile Way	TS	28.3	C	28.6	C	31.8	C	31.7	C
10. Lenwood Rd./Project Access	OWSC	27.8	D	**96.0**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.7	A	8.9	A	8.8	A	8.8	A

Notes: TS = traffic signal, OWSC = One-Way Stop Controlled
Bold indicates unacceptable LOS
Source: LL&G, 2010.

Background Plus Alternative B Roadway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative B traffic conditions have been calculated for the study area roadway segments and are shown in **Table 4.7-10**. With implementation of Alternative B, all of the study roadway segments are projected to operate within an acceptable LOS under background plus Alternative B traffic conditions in the opening year 2013.

Background Plus Alternative B Freeway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative B has been calculated for the study area freeway segments and is shown in **Table 4.7-11**. With implementation of Alternative B, all of the

study freeway segments are projected to operate within an acceptable LOS under background plus Alternative B traffic conditions in the opening year 2013.

TABLE 4.7-10
BACKGROUND PLUS ALTERNAITVE B ROADWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.60	B
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.38	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.27	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.25	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

TABLE 4.7-11
BACKGROUND PLUS ALTERNATIVE B FREEWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.4~~25~~487	0.371	B	B
SR-58 to Lenwood Road	4	9,200	0.302	0.232	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.404	0.375	B	B
I-15 Southbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.4~~99~~548	0.4~~31~~465	B	B
SR-58 to Lenwood Road	3	6,900	0.454	0.387	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.482	0.409	B	B

Notes: V/C = volume to capacity ratio
Source: LL&G, 2011~~0~~.

Traffic Signal Warrant Analysis

For background plus Alternative B traffic conditions in the opening year 2013, the study area intersections have been evaluated to determine the need for installation of traffic signals as specified in the California MUTCD (FHWA, 2004). A traffic signal is anticipated to be warranted at the following study area intersection:

- Lenwood Road/Project Access

Ramp Diverge Operations

Tables 1, 3, and 14 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis at I-15 NB/SB Off-Ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. The ramp diverge operations were determined to be greatest during the Sunday PM peak-hour. As shown in the Table 14 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would not exceed the County's significance threshold of LOS D; therefore, Alternative B would not have a significant adverse effect on ramp diverge operations at I-15 NB/SB Off-Ramps to Lenwood Road.

Intersection Queuing Operations

Tables 5, 7, and 16 of **Appendix Q** of the Final EIS/TEIR provide a queuing analysis at I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. Based on the project trip distribution, project trips were only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables there is sufficient storage to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound Off-Ramps with or without Alternatives A during the buildout year 2013 at the movements in which the project adds trips.

Tables 5, 7, and 16 of **Appendix Q** of the Final EIS/TEIR provide a queuing analysis at the Outlet Center Drive Off-Ramp location. Based on the project trip distribution, project trips are only added to the I-15 NB Off-Ramp/Outlet Center Drive northbound right-turn movement. As shown in these tables, sufficient capacity is available to serve the buildout year 2013 traffic queues with and without project traffic.

Alternative B would not have a significant adverse effect on traffic queuing at I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road.

Transit, Bicycle, and Pedestrian Facilities

Impacts to the Barstow Area Transit system and to bicycle and pedestrian circulation would be similar to Alternative A. Refer to **Subsection 4.7.2**.

Summary of Traffic Impacts

The increase in traffic generated by Alternative B would not contribute to unacceptable traffic operations at any of the study intersections other than the Lenwood Road / Project Access intersection. As with Alternative A, the Lenwood Road / Project Access intersection would operate at levels as low as LOS F and would potentially affect the ability of northbound vehicles to access existing business' driveways to the west (LL&G, 2010). Implementation of mitigation measures provided in **Section 5.7** would restore the intersection to satisfactory operations based City LOS standards; therefore, development of Alternative B would have minimum adverse effect on traffic and circulation.

4.7.4 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Site Access

The main access point to the project site would utilize the existing driveway located on Camino San Ignacio Road. This approach is assumed to continue to operate as a full movement driveway with no turn limitations.

Construction Traffic

Traffic generated by construction of Alternative C would be less than operational traffic, which, as discussed below, does not lead to a decrease in LOS below established thresholds. In addition, construction traffic is temporary; therefore, significant adverse effects associated with construction traffic would not occur.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative C is shown in **Table 4.7-12**. Methodology used to determine trip generation is described in detail in **Subsection 4.7.1**.

TABLE 4.7-12
ALTERNATIVE C PEAK HOUR TRIP GENERATION

Proposed Land Use	Weekday Mid-day			Weekday Evening			Saturday		
	In	Out	Total	In	Out	Total	In	Out	Total
Casino (25.0 KSF)									
Trip Rates	2.34	1.61	3.95	2.62	2.33	4.95	3.17	3.73	6.90
Trips Generated	59	40	99	66	58	124	79	93	172

Note: KSF = thousand square feet
Source: Kunzman, 2007.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative C, the existing directional distribution of traffic for areas in the vicinity of the project site was reviewed. The distribution of new trips generated by Alternative C is provided in the Kunzman TIA provided in **Appendix H** of the Draft EIS/TEIR.

Background Traffic Conditions Without Project

Background Project Traffic Volumes

To assess background traffic conditions, existing traffic (described in detail in **Section 3.7**) is combined with area-wide growth. To account for area-wide growth, background traffic volumes have been calculated using a conservative two percent annual growth rate of existing traffic volumes over a three-

year period. This growth rate for the Los Coyotes study area was obtained from the *Traffic Volumes on California State Highways* (Caltrans, 2005).

Background Intersection Operations

Table 4.7-13 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the Los Coyotes Site study intersections under background traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections under background traffic conditions are provided within **Appendix H** of the Draft EIS/TEIR.

TABLE 4.7-13
BACKGROUND INTERSECTION CONDITION

Intersection	Traffic Control[1]	Peak Hour Delay-LOS			
		Weekday		Saturday	
		Mid-Day	Evening	Mid-Day	Evening
1. SR-79/Stage Road	CSS	8.8-A	8.8-A	9.8-A	9.6-A
2. SR-79/Camino San Ignacio Road	CSS	9.0-A	8.8-A	9.6-A	9.0-A
3. SR-79/San Felipe Road	CSS	9.8-A	9.5-A	10.2-B	9.7-A
4. SR-79/SR-76	CSS	9.8-A	9.8-A	11.5-B	10.7-B

Notes: 1. TS = traffic signal, CSS = cross street stop
Source: Kunzman, 2007.

Background Project Roadway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative C have been calculated for the Los Coyotes study area roadway segments and are shown in **Table 4.7-14**. As shown in the table, the study roadway segment is projected to operate within an acceptable LOS under background traffic conditions.

TABLE 4.7-14
BACKGROUND ROADWAY SEGMENT CONDITION

Roadway	Segment	Number of Lanes[1]	Maximum Capacity (LOS D)	ADT[2]	V/C[3]	LOS
Camino San Ignacio Road	South of SR-79	2U	10,900	500	0.05	A

Notes: 1. U = undivided roadway
2. ADT = average daily trips
3. V/C = volume to capacity ratio
Source: Kunzman, 2007.

Traffic Conditions Plus Project

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative C was added to background traffic volumes.

Background Plus Alternative C Intersection Operations

Table 4.7-15 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections background plus Alternative C traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections under background plus Alternative C traffic conditions are provided in **Appendix H** of the Draft EIS/TEIR. With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS.

TABLE 4.7-15
INTERSECTION LOS PLUS ALTERNATIVE C

Intersection	Traffic Control[1]	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		Evening		Mid-Day		Evening	
1. SR-79/Stage Road	CSS	9.0	A	9.2	A	10.4	A	10.2	A
2. SR-79/Camino San Ignacio Road	CSS	9.6	A	9.8	A	11.7	A	10.6	A
3. SR-79/San Felipe Road	CSS	10.2	B	9.9	A	10.9	B	10.3	A
4. SR-79/SR-76	CSS	10.2	B	10.3	B	12.7	B	11.5	B

Notes: 1. TS = traffic signal, CSS = cross street stop
Source: Kunzman, 2007.

Background Plus Alternative C Roadway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative C have been calculated for the Los Coyotes study area roadway segments and are shown in **Table 4.7-16**. With implementation of Alternative C, the study roadway segment is projected to operate within an acceptable LOS under background plus Alternative C traffic conditions.

TABLE 4.7-16
ROADWAY SEGMENT LOS PLUS ALTERNATIVE C

Roadway	Segment	Number of Lanes[1]	Maximum Capacity (LOS D)	ADT[2]	V/C[3]	LOS
Camino San Ignacio Road	South of SR-79	2U	10,900	1,500	0.14	A

Notes: 1. U = undivided roadway
2. ADT = average daily trips
3. V/C = volume to capacity ratio
Source: Kunzman, 2007

Traffic Signal Warrant Analysis

For background plus Alternative C traffic conditions, the study area intersections have been evaluated to determine the need for installation of traffic signals as specified in the California MUTCD (FHWA, 2004). Traffic signals are not anticipated to be warranted at any of the study intersections.

Transit, Bicycle, and Pedestrian Facilities

The Los Coyotes study area is not currently served by the San Diego Metropolitan Transit System or any other public transportation system. Therefore, implementation of Alternative C would not impact public transportation systems. Additionally, designated bikeway facilities or pedestrian sidewalks do not exist in the vicinity of the Los Coyotes site. Therefore, Alternative C would not adversely impact bicycle or pedestrian facilities.

Summary of Traffic Impacts

The increase in traffic generated by Alternative C would not result in an unacceptable LOS or warrant a traffic signal. Therefore, development of Alternative C would not result in ~~signficant~~significant adverse effects on traffic and circulation.

4.7.5 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Site Access

The main access point to the project site would utilize the existing driveway located on Camino San Ignacio Road. This approach is assumed to continue to operate as a full movement driveway with no turn limitations.

Construction Traffic

Construction related traffic impacts would be similar or less than Alternative C. Refer to **Subsection 4.7.6**.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative D is shown in **Table 4.7-17**. Alternative D is projected to generate approximately 47 weekday morning peak hour trips and 87 weekday evening peak hour trips. The trip generation rates used to calculate Alternative D trips were provided by the ITE *Trip Generation Manual*, 8th Edition, 2009 land use code 416.

TABLE 4.7-17
ALTERNATIVE D PEAK HOUR TRIP GENERATION

Proposed Land Use	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Campground (213 Campsites)						
Trip Rates	0.09	0.13	0.22	0.25	0.16	0.41
Trips Generated	19.7	27.2	46.9	54.1	33.2	87.3
Source: ITE Trip Generation Manual, 8th Edition, 2009.						

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative D, the existing directional distribution of traffic for areas in the vicinity of the project site was reviewed. The distribution of new trips generated by Alternative D is identical to Alternative C and is shown in the Kunzman TIA provided in **Appendix H** of the Draft EIS/TEIR.

Background Traffic Conditions

Refer to **Subsection 4.7.6** for a description of background traffic conditions for the Los Coyotes study area.

Background Plus Alternative D Traffic Conditions

Alternative D is projected to generate 87 trips during the weekday evening peak hour (**Table 4.7-15**), as compared to 124 trips for Alternative C (**Table 4.7-15**). Because Alternative D would generate fewer trips, traffic related effects are projected to be similar to, or less than those resulting from Alternative C. Refer to **Subsection 4.7.6**.

Background Plus Alternative D Intersection Operations

With the implementation of Alternative D, all of the study intersections in the Los Coyotes study area are projected to operate at an acceptable LOS, similar to Alternative C. Refer to **Subsection 4.7.6**.

Background Plus Alternative D Roadway Segment Operations

With implementation of Alternative D, the study roadway segment is projected to operate within an acceptable LOS under background plus Alternative D traffic conditions, similar to Alternative C. Refer to **Subsection 4.7.6**.

Traffic Signal Warrant Analysis

For background plus Alternative D traffic conditions, traffic signals are not anticipated to be warranted at any of the study intersections, similar to Alternative C. Refer to **Subsection 4.7.6**.

Transit, Bicycle, and Pedestrian Facilities

Impacts to transit, bicycle, and pedestrian facilities would be similar to Alternative C. Refer to **Subsection 4.7.6**.

Summary of Traffic Impacts

The increase in traffic generated by Alternative D would not result in an unacceptable LOS or warrant a traffic signal. Therefore, development of Alternative D would not result in significant adverse effects on traffic and circulation.

4.7.6 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.8 LAND USE

This section identifies the direct effects to land use that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.8**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.8**.

Assessment Criteria

Adverse effects would occur if development would be incompatible with adjacent designated land uses, thereby impeding effective local and regional planning efforts.

4.8.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Alternative A would result in approximately 23.1 acres of land being removed from the City of Barstow's (City) land use jurisdiction and placed into federal trust for the Tribe. Once the property is taken into trust, the only applicable land use regulations would be federal or Tribal. However, the Tribal Government desires to work cooperatively with local and state authorities on land use matters.

In furtherance of that goal, the Tribe has entered into a Municipal Services Agreement (MSA) with the City in which they have agreed to develop tribal projects occurring on trust lands in a manner that is consistent with the Barstow Municipal Code and to adopt building standards and codes no less stringent than those adopted by the City prior to the use of any structure (**Appendix D** of the Draft EIS/TEIR).

Land Use Plans

City planning documents currently in effect for the Barstow site include the City of Barstow General Plan, Lenwood Specific Plan, City of Barstow Zoning Ordinance, and the applicable Redevelopment Plan. The project site is located in an area designated as Commercial-Recreational/Transition in the Lenwood Specific Plan Boundary. Construction of the casino, hotel~~s~~ and associated amenities would not conflict with the planned recreational intent of the area.

Development standards incorporated into Alternative A would not substantially conflict with the City's standards including permitted uses, parking standards, outdoor storage and loading area requirements, utilities and lighting requirements, sign standards, architectural/building standards, and guidelines for accessory structures. These development standards would be integrated by the final design phase of Alternative A. Buildings would be set back at least 50 feet from Lenwood Road. Light fixtures would not extend above 30 feet in height, and the lighting would be designed to confine direct rays to the premises. Signage would be architecturally compatible with the buildings, and would be of appropriate size and content, in accordance with the guidelines set forth in the Lenwood Specific Plan. As shown in the architectural rendering, it is anticipated that the design materials and colors would be visually

appealing, of a neutral tone, and blend with the surrounding environment. Development of Alternative A would be generally consistent with local land use plans.

Effects to Existing Land Uses

The Barstow site consists of vacant and undeveloped land and there are no uses that would be disrupted by the construction of a casino/hotel resort. An open space recreational area, owned and managed by the Bureau of Land Management, is located east of the Barstow site. This area, known as the Stoddard Valley Off-Highway Vehicle (OHV) area, is used primarily for off-road vehicle recreation with motorcycles, all-terrain vehicles, and four-wheel drive vehicles. This area is also used for competitive racing events. Alternative A would not severely impact the OHV area, as commercial development consisting of a retail outlet mall already exists along its western boundary. The hotel component of the development would benefit large events at the OHV area. The OHV area is a vast expanse of land. Operation of the proposed casino-hotel complex would not preclude its use as a recreation area. Because noise and nighttime lighting are generated by the OHV area, it would be unaffected by any noise or light emitted by development of Alternative A.

Development surrounding the Barstow site to the north and west consists of hotels, restaurants, and outlet malls primarily serving as highway-related commercial uses. Alternative A would be complementary to these existing commercial uses. Lands to the south are designated as Commercial-Recreational/ Transition and thus would be developed in the future with uses compatible with the Barstow site. Alternative A would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses and thus would have a no adverse effects on existing land uses.

Agriculture

Alternative A is located on land designated for future commercial or recreational uses; it does not contain prime or unique farmlands, or farmland of statewide importance (**Appendix I** of the Draft EIS/TEIR). There are no issued or identified Williamson Act contracts on the Barstow site. Development of Alternative A would have no adverse effects on agriculture.

4.8.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

As with Alternative A, the Barstow site would be brought into trust and would not be subject to local land use jurisdiction; however, as described above the Tribe has agreed to develop tribal projects occurring on trust lands in a manner that is consistent with the Barstow Municipal Code and to adopt building standards and codes no less stringent than those adopted by the City prior to the use of any structure (MSA, **Appendix D** of the Draft EIS/TEIR). Like Alternative A, Alternative B would be located on the Barstow site and would consist of a casino-hotel resort development. Both alternatives are similar in use and design.

Land Use Plans

Due to the similarities between Alternatives A and B, the discussion under Alternative A regarding compatibility with the General Plan, Redevelopment Plan, and Zoning, apply to Alternative B. The Lenwood Specific Plan generally requires compatibility with the adjacent OHV areas and adequate provisions for water, sewer, electricity, gas, telephone, and storm drainage. With provision of public services discussed in **Section 4.9**, development of Alternative B would be generally consistent with local land use plans.

Effects to Existing Land Uses

Similar to Alternative A, Alternative B would have no adverse effects on existing land uses.

Agriculture

As discussed for Alternative A, the Barstow site does not contain designated farmland or Williamson Act contracts. Development of Alternative B would have no adverse effects on agriculture.

4.8.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

The Los Coyotes site is located on existing tribal trust property. It is not subject to San Diego County land use jurisdiction. The Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians has jurisdictional authority over land use matters on the Reservation.

Effects to Existing Land Uses

The Los Coyotes site is undeveloped and does not contain urban features or land uses which would be affected by development at the other sites. Surrounding the Los Coyotes site are undeveloped lands on the Los Coyotes Reservation. There is a considerable distance to both tribal and off-Reservation uses, the nearest of which are primarily rural residential. Alternative C would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. No adverse effects to existing land uses would occur.

Agriculture

As shown on the Farmland Conversion Impact Rating Form (Form AD-1006, **Appendix I** of the Draft EIS/TEIR), the Los Coyotes site contains 17 acres of prime farmland, unique farmland, or farmland of statewide or local importance and is subject to evaluation under the Farmland Protection Policy Act (FPPA). As indicated on the FCIR form, the Los Coyotes site has a combined land evaluation and site assessment score of 108. As discussed in the criteria developed pursuant to FPPA, "sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated" (7 CFR §658.4). There are no lands under a Williamson Act contract or agricultural uses on the Los Coyotes site. As all development would occur within the boundaries of the Reservation, no off-Reservation agricultural/forest land would be converted to non-agricultural/forest use as a result of Alternative C. Development of Alternative C would have no adverse effects to agricultural resources.

4.8.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

As discussed for Alternative D, the Los Coyotes site is located on existing tribal trust property and is not subject to San Diego County land use jurisdiction. The Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians has jurisdictional authority over land use matters on the Reservation.

Effects to Existing Land Uses

The Los Coyotes site is undeveloped and does not contain urban features or land uses which would be affected by development of campgrounds under Alternative D. Alternative D would not disrupt neighboring land uses, would not prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. As with Alternative C, Alternative D would have no adverse effects on existing land uses.

Agriculture

As discussed above, the Los Coyotes was evaluated using the FCIR Form (Form AD-1006, **Appendix I** of the Draft EIS/TEIR). As indicated on the FCIR form, the Los Coyotes site has a combined land evaluation and site assessment score of 108; therefore, no further consideration is required. There are no lands under a Williamson Act contract or agricultural uses on the Los Coyotes site. As all development would occur within the boundaries of the Reservation, no off-Reservation agricultural/forest land would be converted to non-agricultural/forest use as a result of Alternative D. Development of Alternative D would have no adverse effects to agricultural resources.

4.8.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potential adverse effects identified for Alternatives A though D are anticipated to occur.

4.9 PUBLIC SERVICES

This section identifies the effects to public services that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.9**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects are presented in **Section 5.9**.

Assessment Criteria

An adverse effect would occur if project-related demands on public services would cause an exceedance of system capacities that result in significant effects to the physical environment. The water supply and wastewater analysis presented herein relies on data presented in **Chapter 2.0**.

4.9.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Water Supply

Water demand for Alternative A would be approximately 140 gallons per minute (gpm) or 201,310 gallons per day (gpd) (See **Table 2-2**). Potable water demand estimates are based on the ratio of average water demand to average wastewater flows at similar facilities.

In accordance with Section 8 of the Municipal Service Agreement (MSA) between the Tribe and the City of Barstow (City), the Tribe would obtain potable supply from Golden State Water Company (GSWC). The GSWC wells in the Barstow Customer Service Area have a capacity of 16,147 acre-feet per year (ac-ft/yr) and had an average pumping rate from 2000 to 2004 of 9,556 ac-ft/yr, with a surplus capacity of approximately 6,591 ac-ft/yr (GSWC, 2005). The Barstow Customer Service Area has adequate capacity for the estimated water demands of the Alternative A, which are equivalent to approximately 225 ac-ft/yr. An existing 16-inch-diameter line that runs along the west side of Lenwood Road would be extended from its current termination point and connected to the proposed facilities. For fire flow, a fire pump and jockey pump would be located on-site to help maintain static pressure, as recommended by the Barstow Fire Protection District. With these pumps, no on-site storage tanks would be required. As GSWC has adequate supply, service can be provided to Alternative A without affecting existing customers and without the need to construct improvements to the existing system. Alternative A would not result in adverse effects to municipal water supply systems.

Wastewater Service

Wastewater demand was assessed using square footage and is based on typical values for similar facilities (See **Table 2-2**). Peaking factors were applied based on information collected from other gaming resorts in California. Alternative A would have an estimated average daily wastewater flow of 179,200 gpd and a peak day wastewater flow of 358,400. The recommended wastewater treatment plant (WWTP) capacity to accommodate peak day flow and unusually heavy wastewater flows that may occur during special events would be 375,000 gpd.

Consistent with Section 7 of the MSA, wastewater service for Alternative A would be provided by the City's WWTP. Currently the WWTP plant serving the City has a treatment capacity of 4.5 million gallons per day (mgd) and a peak flow of approximately 2.7 mgd (Barbour, 2009). There is adequate surplus capacity to accommodate peak (0.35 mgd) wastewater flows from Alternative A (**Table 2-2**). The existing 10-inch-diameter sewer line would be extended from the intersection of Lenwood Road and Mercantile Way to the Barstow site. The Contract/Project Coordinator for the City's WWTP would determine if upgrades to sewer truck lines and/or pump stations would be required. In accordance with Section 7 of the MSA between the Tribe and the City, the~~The~~ Tribe would pay the cost of constructing sewer infrastructure, if needed, to serve the project. A discussion of the potential indirect effects of Alternative A is provided in **Section 4.14.1**. Alternative A would not result in adverse effects to municipal wastewater services.

Solid Waste Service

Construction

Construction of Alternative A would result in a temporary increase in waste generation. The waste stream would consist of excess construction materials and excavated fill. Waste that cannot be recycled would be disposed of at the Barstow Landfill, which accepts construction/demolition materials. Excavated fill material would be reused at other construction sites to the extent possible. In the most extreme case, no users would require the fill and it would be disposed of and used as cover for the Barstow Landfill. As discussed below, the Barstow landfill has sufficient capacity to accept the 71,296 cubic feet of excavated soil, which would represent 0.6 percent of the permitted daily intake. Construction of Alternative A would not result in significant adverse effects on solid waste services.

Operation

The California Integrated Waste Management Board (CIWMB) has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative A is anticipated to have 1,309 full-time employees. Amusement and recreation developments are estimated to generate 0.9 tons per employee per year while hotels are estimated to generate 2.1 tons per employee per year (CIWMB, 2007a). As Alternative A would include both gaming and hotel uses, it is anticipated that the estimated amount of solid waste would be between these generation rates or between 1,178 and 2,748 tons per year (3.2 and 7.5 tons per day, respectively). Bins would be provided for recycling within the proposed facilities.

As discussed in Section 9 of the Tribe's MSA, the Tribe would utilize the City's contracted solid waste disposal company. The City's franchised solid waste collection company hauls waste to the Barstow Landfill (Barbour, 2006). Solid waste from Alternative A would represent approximately 0.42 percent - 1.00 percent of the landfill's current permitted daily intake. When the landfill is expanded, Alternative A would represent approximately 0.21 percent – 0.50 percent of the landfills expected permitted daily intake. Alternative A's projected solid waste generation is considered a small contribution to the waste stream and would not dramatically decrease the life expectancy of the landfill. Alternative A would not affect County diversion goals as waste generated on tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section**

5.3, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative A would not result in significant adverse effects on solid waste services.

Energy

The Tribe has agreed in Section 8 of the MSA that there shall be no on-site generation of electricity except for emergency power purposes. Electricity would be obtained from Southern California Edison Company (SCE), which maintains electrical lines along the northern boundary of the Barstow site. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative A.

Gas service would be provided by Southwest Gas Corporation, which maintains a 4-inch-diameter line along Lenwood Road (Merrell Engineering Company, 2003). This line may need to be upgraded to provide service to Alternative A. The Tribe would pay a fair share of the improvement costs necessary to service the Barstow site. Service to existing customers would not be affected as the Tribe would coordinate with Southwest Gas Corporation. Alternative A would not result in significant adverse effects on energy services.

Law Enforcement Services

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.6**.
In accordance with Section 4 of the Tribe's MSA, the City would provide police services including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes (**Appendix D** of the Draft EIS/TEIR). The police department would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. Additionally, an increase in service demands to the State Highway Patrol may result from development of the project. However, payments to the State under the Tribal-State compact would offset any impacts to the State Highway Patrol. ~~Additionally,~~ T~~t~~he Tribe would employ security personnel and provide surveillance throughout the proposed facilities. As discussed in Section 4 of the MSA, security personnel would work cooperatively with the City Police Department. The Tribe would make payments to the City to cover the costs of impacts associated with increased police services. The Tribe has also agreed in Section 4 of the MSA, upon request of the City, to dedicate land for fire and police station use and pay for a portion of new fire and police stations. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative A would not result in significant adverse effects on law enforcement services.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites.

Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative A would not result in significant adverse effects on fire protection and emergency medical services during construction. Specific BMPs presented in **Section 5.9** would further reduce identified adverse effects.

Operation

Alternative A would increase the number of visitors in the project area, which would result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative A would likely be emergency medical response calls, but could also include structure fires or hazardous materials response. The fire protection facilities on-site would be fitted with automatic fire sprinkler systems. Twenty-four-hour surveillance would afford timely detection of fires and early intervention of any fires. As recommended by the Barstow Fire Protection District (BFPD) a fire pump and jockey pump would be located on-site to help maintain static pressure.

As agreed upon in the Tribe's MSA with the City, BFPD would provide fire protection and emergency medical services to the Barstow site (**Appendix D** of the Draft EIS/TEIR). In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for the purchase of a fully equipped Emergency Medical Services Response Vehicle which shall be housed at Station 363 for the first two years of resort operations. To respond more effectively to high-rise emergencies at any structure on trust lands between one and four stories, the Barstow Fire Protection District has agreed to relocate its ladder fire truck from Station 361 to Station 363 for the first two years of resort operation, as identified in Section 4(B)(2) of the MSA. The Barstow Fire Protection District and the City have advised that a ladder truck is not typically used to fight fires on buildings more than four stories in height and that buildings over four stories in height require entry by Fire Department personnel and personal action at the burning site. If a structure exceeding four stories in height is constructed by the Tribe on trust lands, the Tribe has agreed to pay one half of the actual costs of training fire personnel. In Section 4(C) of the MSA, the Tribe has also agreed to dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. This dedicated land will be used by the City to construct new fire and police stations when, and if, deemed necessary by the City in its sole discretion.

The nearest emergency room is located at the Barstow Community Hospital at 555 South 7th Avenue in Barstow. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative A would not result in significant adverse effects on fire protection and emergency medical services.

4.9.2 ALTERNATIVE B – BARSTOW REDUCED CASINO- HOTEL COMPLEX

Water Supply

A water and wastewater feasibility study determined that the water demand for Alternative B would be approximately 92 gpm or 132,810 gpd (**Table 2-4**), approximately 34 percent less than Alternative A. Potable water demand estimates are based on the ratio of average water demand to average wastewater flows at similar facilities.

In accordance with Section 8 of the MSA between the Tribe and the City, the Tribe would obtain their potable supply from GSWC. The GSWC wells in the Barstow Customer Service Area have a surplus capacity of approximately 6,591 ac-ft/yr (GSWC, 2005). The Barstow Customer Service Area has adequate capacity for the estimated water demands of Alternative B, which are equivalent to approximately 148 ac-ft/yr. An existing 16-inch-diameter line that runs along the west side of Lenwood Road would be extended from the current termination point and connected to the proposed facilities. As with Alternative A, it is recommended that a fire pump and jockey pump are located on-site to help maintain static pressure. With these pumps, no on-site storage tank would be required. As GSWC has adequate supply, service can be provided to Alternative B without affecting existing customers and without the need to construct improvements to the existing system. Alternative B would not result in adverse effects to municipal water supply systems.

Wastewater Service

Wastewater demand was assessed using square footage and is based on typical values for similar facilities (**Table 2-4**). Alternative B would have an estimated average daily wastewater flow of 118,200 gpd and a peak day wastewater flow of 236,400 gpd. The recommended wastewater treatment capacity to accommodate peak day flow and unusually heavy wastewater flows that may occur during special events would be 250,000 gpd, approximately one third less than Alternative A.

Consistent with Section 7 of the MSA, wastewater service for Alternative B would be provided by the City's WWTP. The WWTP serving the City currently has a treatment capacity of 4.5 mgd. The daily wastewater flow is approximately 2.7 mgd with a peak flow of 3.2 mgd. There is adequate surplus capacity to accommodate peak (0.23 mgd) wastewater flows from Alternative B. The existing 10-inch-diameter sewer line would be extended from the intersection of Lenwood Road and Mercantile Way to the Barstow site. The City's planning department and engineering department would determine if upgrades to sewer truck lines and/or pump stations would be required. In accordance with Section 7 of the MSA between the Tribe and the City, ~~T~~the~~The~~ Tribe would pay the cost of constructing sewer infrastructure, if needed, to serve the project. As the City has adequate wastewater treatment capacity, they could provide service to Alternative B without affecting existing customers. Alternative B would not result in adverse effects on municipal wastewater services.

Solid Waste Service

Construction

Construction of Alternative B would result in a temporary increase in waste generation, to a lesser extent than Alternative A. Since there is no underground parking under Alternative B, there would be no excavated fill material to dispose of at the landfill or offsite locations. The waste stream would consist only of excess construction materials. Waste that cannot be recycled would be disposed of at the Barstow Landfill, which accepts construction/demolition materials. Construction of Alternative B would not result in significant adverse effects on solid waste services.

Operation

The CIWMB has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative B is anticipated to have 1,038 full-time employees. Amusement and recreation developments are estimated to generate 0.9 tons per employee per year while hotels are estimated to generate 2.1 tons per employee per year (CIWMB, 2007a). As Alternative B would include both gaming and hotel uses, it is anticipated that the estimated amount of solid waste would be between these generation rates or between 934 and 2,179 tons per year (2.5 and 5.9 tons per day, respectively).

In accordance with Section 9 of the MSA, the Tribe would utilize the City's contracted solid waste disposal company. Waste would be hauled to the Barstow Landfill. As with other developments, bins would be provided for recycling. Solid waste from Alternative B would represent approximately 0.13 percent to 0.78 percent of the landfill's current permitted daily intake. When the landfill is expanded, Alternative B would represent approximately 0.16 percent to 0.39 percent of the expected permitted daily intake. Alternative B's projected solid waste generation is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfill. Alternative B would not affect County diversion goals as tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section 5.3**, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative B would not result in significant adverse effects on solid waste service.

Energy

Consistent with the MSA, electricity for Alternative B would be obtained from SCE, which maintains electrical lines along the northern boundary of the Barstow site. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative B.

Gas service would be provided by Southwest Gas Corporation, which maintains a 4-inch-diameter line along Lenwood Road (Merrell Engineering Company, 2003). This line may need to be upgraded to service Alternative B. The Tribe would pay a fair share of the improvement costs necessary to service the Barstow site. Service to existing customers would not be affected, as the Tribe would coordinate with

Southwest Gas Corporation. Alternative B would not result in significant adverse effects on energy services.

Law Enforcement Services

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.6**. While there is no definitive link between casinos and crime it is anticipated that that the increased concentration of people that Alternative B would bring to the Barstow area would lead to an increase in the number of service calls for local law enforcement.

Impacts to law enforcement may include an increased need for services, including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes. The Barstow site would be served by the City police department. The police department would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. Security presence would deter some crimes and security personnel would work cooperatively with the City Police Department. As with Alternative A, the Tribe would make payments to the City to cover the costs of impacts associated with increased police services, and has agreed to dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative B would not result in significant adverse effects on law enforcement services.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites. Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative B would not result in significant adverse effects on fire protection and emergency medical services during construction. Specific BMPs presented in **Section 5.9** would further reduce adverse effects to fire protection and emergency medical services.

Operation

Alternative B would increase the number of visitors in the area, which would result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative B would likely be emergency medical assists but could also include structure fires or hazardous materials response. The facilities would be fitted with automatic fire sprinkler systems. Twenty-four-hour surveillance would afford timely detection of fires and early intervention of any fires. A fire pump and jockey pump would be located on-site to help maintain static pressure as recommended by the BFPD.

In accordance with the MSA, the BFPD would provide fire protection and emergency medical services to Alternative B. In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for

the purchase of a fully equipped Emergency Medical Services Response Vehicle which shall be housed at Station 363 for the first two years of resort operations. To respond more effectively to high-rise emergencies at any structure on trust lands between one and four stories, the BFPD has agreed to relocate its ladder fire truck from Station 361 to Station 363 for the first two years of resort operation, as identified in Section 4(B)(2) of the MSA. The BFPD and the City have advised that a ladder truck is not typically used to fight fires on buildings more than four stories in height and that buildings over four stories in height require entry by Fire Department personnel and personal action at the burning site. If a structure exceeding four stories in height is constructed by the Tribe on trust lands, the Tribe has agreed to pay one half of the actual costs of training fire personnel. In Section 4(C) of the MSA, the Tribe has also agreed to dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. This dedicated land will be used by the City to construct new fire and police stations when, and if, deemed necessary by the City in its sole discretion.

The nearest emergency room is the Barstow Community Hospital. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative B would not result in significant adverse effects on fire protection and emergency medical services.

4.9.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Water Supply

A water and wastewater feasibility study determined that the water demand for Alternative C would be approximately 7 gpm (**Table 2-6**). Water would be supplied by a new well on the reservation. It is anticipated that groundwater would be encountered at 150 to 350 feet, and would be sufficient to supply the recommended 7 gpm for this alternative. Due to the amount of water used by Alternative C and adequate distance from municipal water systems, development of Alternative C would have no adverse effects on municipal water systems.

Wastewater Service

Wastewater demand for Alternative C was assessed using square footage and is based on typical values for similar facilities (**Table 2-6**). Alternative C would have an estimated average daily wastewater flow of 8,900 gpd and a peak day wastewater flow of 17,800 gpd. The recommended wastewater treatment capacity to accommodate peak day flow and unusually heavy wastewater flows that may occur during special events flows is 20,000 gpd. Since no municipal sewer service is available in the area, the Tribe proposes to construct an on-site membrane bioreactor (MBR) WWTP with a capacity of 20,000 gpd. Tertiary treatment utilizing an MBR would be used, so that the treated wastewater could be recycled. Wastewater would be disposed of through a subsurface disposal system that includes drip irrigation used in landscaping and a disposal area beneath the parking lot. As the Tribe would provide on-site wastewater treatment, development of Alternative C would have no adverse effects on municipal wastewater systems.

Solid Waste Service

Construction

Construction of Alternative C would result in a temporary increase in waste generation. The waste stream would consist of excess construction materials. Waste that cannot be recycled would most likely be disposed of at the Ramona Landfill, which accepts construction/demolition materials. Construction of Alternative C would not result in significant adverse effects on solid waste services.

Operation

The CIWMB has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative C is anticipated to have 105 employees. Amusement and recreation developments are estimated to generate 0.9 tons per employee per year. The estimated disposal rate from Alternative C is 94.5 tons per year or 0.26 tons per day.

Under this alternative, the Tribe would contract with Ramona Disposal for solid waste collection. Waste is taken to the Ramona Landfill, the Otay Landfill, and the Sycamore Sanitary Landfill. The maximum permitted capacity of the landfills is 295, 5,830, and 3,965 tons per day, respectively. Solid waste from Alternative C would represent approximately 0.005 percent of Ramona Landfill's permitted daily intake, 0.00004 percent of the Otay Landfill's permitted daily intake, and 0.00006 percent of the Sycamore Sanitary landfill's permitted daily intake. As with other developments, bins would be provided for recycling. Alternative C's projected solid waste generation is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfills used by Ramona Disposal. Alternative C would not affect County diversion goals as tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section 5.3**, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative C would not result in significant adverse effects on solid waste services.

Energy

Electricity would be obtained from San Diego Gas and Electric, which currently supplies the southwest portion of the Reservation. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative C.

There is no natural gas service to the Reservation. Propane, which is distributed locally by several companies, would be utilized at the proposed facilities. The nearest distributors are located in Borrego Springs. Deliveries would be made once or twice per week, depending on the size of the on-site storage tank. Alternative C would not result in significant adverse effects on energy services.

Law Enforcement Services

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.6**. While there is no definitive link between casinos and crime it is anticipated that that the increased concentration of people that Alternative C would bring to the Los Coyotes site would lead to an increase in the number of service calls for local law enforcement.

Impacts to law enforcement may include an increased need for services, including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes. The Los Coyotes site would be served by the San Diego Sheriff's Department, which would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280. Security presence would deter some crimes and would work cooperatively with the Sheriff's Department. ~~Additional demands to law enforcement would not be offset by property tax or development fees and thus the Tribe should compensate the Department based on the level of service needed.~~ A development of this size is not likely to produce high equipment or personnel demand however it may affect the existing level of service. As discussed in **Subsection 2.2.3**, the Tribe would be willing to negotiate appropriate compensation to San Diego County for services provided to Alternative C. Mitigation within Section 5.9 would require that the Tribe make a good faith effort to enter into an agreement with San Diego County to address the increased demand on law enforcement services. With mitigation, ~~D~~development of Alternative C would not result in significant adverse effects on law enforcement services.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites. Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative C would not result in significant adverse effects on fire protection and emergency medical services during construction. Specific BMPs presented in **Section 5.9** would further reduce adverse effects.

Operation

As described in **Section 2.2.3**, all construction associated with Alternative C would be in accordance with the International Building Code, which includes fire prevention criteria. Alternative C would increase the number of visitors in the area, which would result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative C would likely be emergency medical assists but could also include structure fires, wild land fires or hazardous materials response. The Tribe would receive fire protection and emergency medical services from California Department of Forestry and Fire Protection (CDF) through an existing agreement with the BIA, and Sunshine Summit Volunteers. CDF would provide primary services and is located approximately 10 miles from the Los Coyotes site. Additional demands to fire protection and emergency medical services would not be offset by property tax or development fees. As described in **Section 5.9**, a technical report including a critical incident tasking/staffing analysis shall be conducted to ensure that the appropriate type and number of

equipment and trained personnel are available to provide fire services to the site. ~~t~~The Tribe would negotiate appropriate compensation to ~~CDF~~ San Diego County for services provided to the casino development based on the outcome of this study. A development of this size is not likely to produce high equipment or personnel demand however it may affect the existing level of service.

The nearest emergency room is Palomar Medical Center in Escondido, which is approximately 55 miles from the Los Coyotes site. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. With the implementation of mitigation included in **Section 5.9**, d~~D~~evelopment of Alternative C would not result in significant adverse effects on fire protection and emergency medical services.

4.9.~~6~~4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Water Supply

A water and wastewater feasibility study determined that the water demand for Alternative D would be approximately 5 gpm (**Table 2-6**). Water would be supplied by a new well on the reservation. It is anticipated that groundwater would be encountered at 150 to 350 feet, and would be sufficient to supply the recommended 5 gpm for this alternative. Due to the amount of water used by Alternative D and adequate distance from municipal water systems, development of Alternative D would have no adverse effects on municipal water systems.

Wastewater Service

Wastewater demand for Alternative D was assessed using square footage and is based on typical values for similar facilities (**Table 2-6**). Alternative D would have an estimated average daily wastewater flow of 6,400 gpd and a peak day wastewater flow of 9,600 gpd. The recommended wastewater treatment capacity to accommodate flows is 10,000 gpd. Since no municipal sewer service is available in the area, the Tribe proposes to construct an on-site MBR WWTP with a capacity of 10,000 gpd. Tertiary treatment utilizing an MBR would be used, so that the treated wastewater could be recycled. Wastewater would be disposed of through a subsurface disposal system. As the Tribe would provide on-site wastewater treatment, development of Alternative D would have no adverse effects on municipal wastewater systems.

Solid Waste Service

Construction

Construction of a campground at the Los Coyotes site would result in a temporary increase in waste generation. The waste stream would consist of excess construction materials. Waste that cannot be recycled would most likely be disposed of at the Ramona Landfill, which accepts construction/demolition materials. Construction of Alternative D would not result in significant adverse effects on solid waste services.

Operation

The CIWMB has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative D is anticipated to have 8 employees. Camping developments are estimated to generate 2.1 tons per employee per year. Alternative D has an estimated disposal rate of 16.8 tons per year or 0.05 tons per day.

Under this alternative, the Tribe would contract with Ramona Disposal for solid waste collection. Waste is taken to the Ramona Landfill, the Otay Landfill, and the Sycamore Sanitary Landfill. The maximum permitted capacity of the landfills is 295, 5,830, and 3,965 tons per day, respectively. Solid waste from Alternative D would represent approximately 0.0002 percent of Ramona Landfill's permitted daily intake, 0.000008 percent of the Otay Landfill's permitted daily intake, and 0.00001 percent of the Sycamore Sanitary landfill's permitted daily intake. Alternative D's projected solid waste generation is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfills used by Ramona Disposal. Alternative D would not affect County diversion goals as tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section 5.3**, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative D would not result in significant adverse effects on solid waste service.

Energy

Electricity would be obtained from San Diego Gas and Electric, which currently supplies the southwest portion of the Reservation. Under this alternative, electricity would be provided to an office and restroom facility. It is anticipated that these facilities could be served by the existing electrical line on the Reservation.

There is no natural gas service to the Reservation. Propane, which is distributed locally by several companies, may be used to provide heat to the office,. The nearest distributors are located in Borrego Springs. Deliveries would be made as needed, depending on the size of the on-site storage tank. The use of propane would not affect municipal natural gas providers. Alternative D would not result in significant adverse effects on energy services.

Law Enforcement Services

Impacts to law enforcement would be minimal but may include increased patrol operations, response to emergency 911 calls, and general investigation for major crimes. The Los Coyotes site would be served by the San Diego Sheriff's Department, which would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280. It is anticipated that the Sheriff's Department could provide service to Alternative D with existing personnel and equipment. Alternative D would not result in significant adverse effects on law enforcement services. As discussed in **Subsection 2.2.4**, the Tribe would be willing to negotiate appropriate compensation to San Diego County for services provided to Alternative D.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites. Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative D would not result in significant adverse effects on fire protection and emergency medical services during construction. The aspects of overall project design and the specific BMPs presented in **Section 5.9** would further reduce adverse effects.

Operation

As described in **Section 2.2.3**, all construction associated with Alternative D would be in accordance with the International Building Code, which includes fire prevention criteria. Alternative D would increase the number of visitors in the area, which could result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative D would likely be emergency medical assists but could also include structure fires, wild land fires, or hazardous materials response. The Tribe would receive fire protection and emergency medical services from CDF through an existing agreement with the BIA and Sunshine Summit Volunteers. CDF would provide primary services and is located approximately 10 miles from the Los Coyotes site. As described in **Section 5.9**, a technical report including a critical incident tasking/staffing analysis shall be conducted to ensure that the appropriate type and number of equipment and trained personnel are available to provide fire services to the site. ~~t~~The Tribe would negotiate appropriate compensation to ~~CDF~~ San Diego County for services provided to Alternative D. Development of campgrounds is not likely to produce high equipment or personnel demand.

The nearest emergency room is Palomar Medical Center in Escondido, which is approximately 55 miles from the Los Coyotes site. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. Development of Alternative D would not result in significant adverse effects on fire protection and emergency medical services. The aspects of overall project design and recommended measures presented in **Section 5.9** would further reduce adverse effects.

4.9.~~7~~5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.10 NOISE

This section identifies the direct effects to noise that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.10**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.10**.

Assessment Criteria

Adverse noise related effects would occur if implementation would result in a substantial permanent increase in the ambient noise environment, or if construction or operation would result in an increase in ambient noise level at sensitive receptor locations. See **Section 3.10** for a definition of sensitive receptors.

Federal Noise Abatement Criteria

The FHWA establishes Noise Abatement Criteria (NAC) for various land uses which have been categorized based upon activity. Land uses are categorized on the basis of their sensitivity to noise, as indicated in **Table 4.10-1**. **Table 4.10-1** provides standards which may be considered applicable to the project sites and alternatives. The standard for the Barstow site would fall under Activity Category E for exterior land uses, because the nearest sensitive noise receptor is a motel (refer to **Section 3.10**). The Los Coyotes site would fall under Activity Category A, because the land use surrounding the site is rural in nature.

State and Local Noise Standards

The Hazards Element of the City of Barstow's General Plan (General Plan, 1996) provides community noise equivalence level (CNEL) noise standards based on land use types. These noise standards have been incorporated into the City of Barstow Noise Ordinance, which determine noise violations within the City limits. The noise standards provided in the General Plan are derived from the *Guidelines for the Preparation and Content of Noise Elements of the General Plan*, California Department of Health, Office of Noise Control, February 1976. The state and local noise standard for a motel (nearest sensitive noise receptor) is 65 CNEL for the exterior and 45 CNEL for the interior of a motel.

Table 4.10-1

FEDERAL NOISE ABATEMENT CRITERIA HOURLY A-WEIGHTED SOUND LEVEL DECIBELS \1\[1]

Activity Category	Activity Criteria \2\[2] Leq (h), dBA[3]	Evaluation Location	Activity Category Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B \3\[4]	67	Exterior	Residential
C \3\[4]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E \3\[4]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, shipyards, utilities (water resources, water treatment, electricity), and warehousing.
G	--	--	Undeveloped lands that are not permitted

[1] \1\Either Leq(h) or L10(h) (but not both) may be used on a project.
[2] Hourly A-weighted sound level, decibels (dBA).
[3] \2\ The leq() and l10(h) Activity Criteria values are for impacts determination only, and are not design standards for noise abatement measures.
[4] \3\ Includes undeveloped lands permitted for this activity category.
Source: FHWA, 2010.

4.10.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Construction

During the construction phase of Alternative A, noise from construction would dominate the noise environment in the immediate area. Equipment used for construction would generate noise levels as

indicated in **Table 4.10-2**. Maximum noise levels from different types of equipment under different operating conditions could range from 70 to 90 decibels (dBA) at a distance of 50 feet. The most noticeable project-generated construction noise source would be truck traffic associated with transport of heavy materials, equipment, and export of excavated materials. Construction activities would be temporary in nature and would generally occur between the hours of 7:00 am and 6:00 pm. Mitigation is provided in **Section 5.10** which would limit the schedule of construction activities and provide engineering controls to reduce construction noise. Because of the temporary and intermittent nature of construction activities, and distance of major construction activities to the nearest sensitive noise receptor (a motel located approximately 600 feet to the west), with mitigation, Alternative A would not result in significant adverse effects associated with noise due to construction.

TABLE 4.10-2
TYPICAL CONSTRUCTION NOISE LEVELS

Type of Equipment	Maximum Noise Level, dBA at 50 feet
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoes	85
Pneumatic Tools	85
Source: BBA, 2004	

Operation

On-site Noise

Alternative A would result in onsite operational noise, primarily from parking lot activity, use of fans for heating, ventilation, and air conditioning (HVAC), truck loading and unloading, and tour bus idling and parking.

Parking

Noise due to traffic in parking lots is limited by low speeds and is not expected to represent a substantial source of noise. It is typical for a passing car in a parking lot to produce a maximum noise level of 60 to 65 dBA at a distance of 50 feet, which is comparable to the level of a raised voice. Human activity in parking lots can produce noise, including talking, yelling, and the opening and closing of car doors, car alarms, stereos, and trunks. Such activities can occur at any time, but frequently occur in the mid-day and evening peak hours. The noise levels associated with these activities cannot be precisely defined because of variables such as number of parking movements and the time of day.

The parking areas for Alternative A surround the proposed buildings. Maximum noise levels at the nearest noise receptors due to cars moving in the parking lot would range between 40 and 50 dBA. The average noise levels would be lower than the ambient noise level due to the distance to the nearest receptor. The increase in ambient noise level at the nearest sensitive receptor from parking activities would not be audible; thus, no adverse effect would occur.

HVAC

The greatest potential for noise impacts from HVAC equipment would occur if fans or similar equipment were located near sensitive receptors. The HVAC units would be situated on the roof of the facilities, over 600 feet from the nearest receptor, and at that distance would not be audible. Operation of the HVAC system would not result in any adverse effects on the ambient noise level.

Truck Loading and Unloading

Although delivery trucks would be moving at low speeds, engine noise from these trucks has the potential to be audible at nearby sensitive noise receptors. Loading/unloading activities can have an adverse effect if sensitive receptors are in close proximity to delivery trucks serving the proposed facilities. Loading docks would be located adjacent to the facilities, and would be more than 600 feet from the nearest noise-sensitive receptor. Maximum noise levels due to truck movements at the loading docks would be in the range of 48 to 53 dBA, without accounting for the shielding that would be provided by the proposed facilities. The facilities are surrounded by commercial and retail outlets, which receive truck deliveries daily. Noise exposure from deliveries to the facilities would not audibly increase ambient noise level of approximately 45 to 55 dBA. Truck loading and unloading would not result in a significant adverse effect on the ambient noise level.

Tour Buses

The noise level associated with the idling of a modern diesel bus can be as high as 65 dBA at 50 feet. Therefore, tour buses parked and idling on the Barstow site could be an additional source of noise if allowed to idle for long periods adjacent to noise receptors. However, mitigation measure provided in **Section 5.10** would prohibit lengthy idling time.

Tour buses in the parking lot would have a minimal adverse effect on the ambient noise level. Due to the distance of Alternative A to the nearest sensitive receptor, with proposed mitigation development of Alternative A would not result in significant adverse effects related to onsite operational noise.

Off-site Noise

Traffic

The level of traffic noise depends on three things: l) the volume of the traffic, 2) the speed of the traffic, and 3) the number of trucks in the flow of the traffic. It is not anticipated that speed in the vicinity of the project or the mix of trucks in the traffic would change; however, traffic volumes would increase as a result of the project. Because noise is measured on a logarithmic scale, 70 dBA plus 70 dBA does not equal 140 dBA. Instead, two sources of equal noise added together have been found to result in an increase of 3 dBA. Therefore, a doubling of the traffic volume would result in a 3 dBA increase in the ambient noise level, while a tripling of the traffic volume would result in a 5 dBA increase in the ambient noise level (Caltrans, 2009a).

The greatest project related increase in traffic relative to existing levels would occur on Lenwood Road. Other roadways would experience increases in traffic; however, the only noise sensitive receptors in the vicinity of the traffic increases are along Lenwood Road. Alternative A would add an estimated 2,960 daily trips along Lenwood Road from the project site to Outlet Center Drive, which has an existing daily volume of 1,610 vehicles (LLG, 2010). The noise level along Lenwood Road with the additional traffic attributable to Alternative A would increase approximately 4.5 Leq dBA to an ambient level of 69.5 Leq dBA at a distance of 50 feet from the centerline of the roadway (Caltrans, 2009a). Sensitive noise receptors on Lenwood Road consist of one motel located approximately 100 feet south of the roadway centerline. Ambient noise levels as a result of Alternative A traffic on Lenwood Road would not exceed the FHWA exterior noise threshold of 72 Leq, dBA for motel land uses.

Using Caltrans conversion factors, the ambient noise level would be 69.4 CNEL dBA at a distance of 50 feet from the centerline of the roadway (Caltrans, 2009a). Given that the nearest sensitive receptor is located 100 feet from the roadway centerline and traffic noise levels attenuate at a rate of 4 to 6 dBA per doubling of distance, and there is a brick wall surrounding the outdoor recreation area that would further attenuate noise levels, the CNEL at the nearest sensitive receptor would be approximately 64.4 CNEL dBA, which does not exceed the City of Barstow's noise standard of 65 CNEL. Therefore, traffic generated by Alternative A would not exceed the federal, state, or local noise standards. A less than significant adverse effect to the noise environment would occur.

4.10.2 ALTERNATIVE B – BARSTOW REDUCED CASINO- HOTEL COMPLEX

Construction

Construction under Alternative B would be similar to construction under Alternative A. Construction noise impacts could have an adverse effect if construction activities occurred at night; however, mitigation is provided in **Section 5.10** which would limit the schedule of construction activities and provide engineering controls on equipment noise. Because of the temporary and intermittent nature of construction activities and distance of major construction activities to the nearest sensitive noise receptor, with mitigation measures significant adverse effects due to construction of Alternative B would not occur.

Operation

On-site Noise

Alternative B would result in on-site operational noise, primarily from parking lot activity, use of fans for HVAC, truck loading or unloading, and tour bus idling. The onsite operational noise would be similar to Alternative A as land uses would be the same, though to a lesser extent due to the decreased intensity of Alternative B; therefore, significant adverse effects to ambient noise levels due to on-site noise sources would not occur.

Off-site Noise

Traffic

As discussed in Alternative A Lenwood Road would have the greatest increase in the ambient noise level. Alternative B would add estimated 2,140 daily trips along Lenwood Road from the project site to Outlet Center Drive, which has an existing daily volume of 1,610 vehicles (TIA, 2010). The noise level along Lenwood Road with the additional traffic attributable to Alternative B would be 68.7 Leq dBA 50 feet from the centerline of the roadway, an increase of 3.7 Leq dBA (Caltrans, 2009a). Ambient noise levels as a result of Alternative B traffic on Lenwood Road would not exceed the FHWA exterior noise threshold of 72 Leq, dBA for motel land uses.

Using Caltrans conversion factors, the ambient noise level would be 68.6 CNEL dBA at a distance of 50 feet from the centerline of the roadway (Caltrans, 2009a). Given that the nearest sensitive receptor is located 100 feet from the roadway centerline and traffic noise levels attenuate at a rate of 4 to 6 dBA per doubling of distance, and there is a brick wall surrounding the outdoor recreation area that would further attenuate noise levels, the CNEL at the nearest sensitive receptor would be approximately 63.6 CNEL dBA, which does not exceed the City of Barstow's noise standard of 65 CNEL. Therefore, traffic generated by Alternative B would not exceed the federal, state, or local noise standards. A less than significant adverse effect to the noise environment would occur.

4.10.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Construction

During the construction phase of Alternative C, noise from construction would dominate the noise environment in the immediate area. Equipment used for construction would generate noise levels as indicated in **Table 4.10-2**. Maximum noise levels from different types of equipment under different operating conditions could range from 70 to 90 dBA at a distance of 50 feet. The most noticeable project-generated construction noise source would be truck traffic associated with transport of heavy materials and equipment. Construction activities would be temporary in nature, typically occurring between the hours of 7:00 am and 6:00 pm. Because of the temporary nature of construction and the isolation of the project site, significant adverse effects on the ambient noise level would not occur.

Operation

On-site Noise

Alternative C would result in onsite operational noise, primarily from parking lot activity, use of fans for HVAC, truck loading or unloading areas, and tour bus parking.

Parking

Parking lot noise, including vehicle traffic and human activity, for Alternative C would be similar to Alternatives A. The parking areas for Alternative C surround the proposed facilities. There are no noise-

sensitive receptors within two miles of the project site. Significant adverse effects to the ambient noise level would not occur with the implementation of Alternative C.

HVAC

The greatest potential for noise impacts from HVAC equipment would occur if fans or similar equipment were located near sensitive receptors. The casino would be equipped with roof-mounted HVAC units. These would be located near the casino, which would be located at least two miles from the nearest noise receptor. There would be a minimal adverse effect to the ambient noise level with the implementation of Alternative C.

Truck Loading and Unloading

Although delivery trucks would be moving at low speeds, engine noise could be audible to people nearby. Loading/unloading activities can have an adverse effect if sensitive receptors are in close proximity to delivery trucks serving the proposed facilities. Loading docks would be located adjacent to the casino building, at least two miles from the nearest noise-sensitive receptors; therefore, loading dock noise would not be audible at the nearest noise-sensitive receptor. Significant adverse effects to the ambient noise level would not occur with the implementation of Alternative C.

Tour Buses

The noise level associated with the idling of a modern diesel bus can be as high as 65 dBA at 50 feet. Therefore, tour buses parked on the Los Coyotes site could be a source of noise if allowed to idle for long periods, causing noise levels to exceed normally acceptable limits. However, the nearest sensitive receptor is at least two miles away from the parking lot. The onsite operational noise would not be considered a significant adverse effect, due to the distance to the nearest sensitive receptor.

Off-site Noise

Traffic

Operation of the gaming facility would result in vehicle traffic to and from the Los Coyotes site. As identified in the TIA, vehicles would enter the site via Camino San Ignacio Road (**Appendix H** of the Draft EIS/TEIR). Camino San Ignacio Road connects directly to SR-79, which is the closest state highway to the project site. The closest ~~nearby~~ noise sensitive receptors are residences located ~~two miles~~approximately 50 feet from ~~the development area~~Camino San Ignacio Road. Noise levels due to increased traffic volumes have the potential to increase the ambient noise level in the vicinity of roadways. The greatest volume of traffic generated by Alternative C is on Camino San Ignacio Road (TIA, **Appendix H** of the Draft EIS/TEIR). Given the rural nature of the project vicinity, the ambient noise level is estimated to be 45 dBA (refer to **Section 3.10.3**, Los Coyotes Site). The existing volume of traffic on Camino San Ignacio Road near SR-76 is approximately 47 vehicles per peak-hour (TIA, **Appendix H** of the Draft EIS/TEIR). Project related traffic would approximately triple the existing traffic volume along Camino San Ignacio Road to 146 vehicles per hour; thus, increasing the ambient noise level by 5 dBA to 50 dBA (Caltrans, 2009). The ambient noise level as a result of Alternative C traffic on Camino San Ignacio Road would not exceed the FHWA exterior noise threshold of 67 Leq,

dBA for residential land uses. ~~At that distance, the increased traffic noise from vehicles arriving at the gaming facility would be negligible.~~ The project traffic would not have a significant adverse effect on the ambient noise level.

4.10.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Due to the isolated area of the Los Coyotes site, as well as the minimal construction requirements and low traffic volume associated with the development of a reservation campground, development of Alternative D noise emitting sources would be limited to human interaction and equipment, such as stereos and other noises associated with human gatherings. Noise associated with increased traffic on Camino San Ignacio Road would be less than would occur under Alternative C due to Alternative D generating less traffic. Implementation of Alternative D would not result in significant adverse effects to the surrounding ambient noise environment.

4.10.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.11 HAZARDOUS MATERIALS

This section identifies the direct effects to hazardous materials that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.11**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.11**.

Assessment Criteria

Adverse effects regarding hazardous materials management would occur if construction and operation would result in hazardous materials exposures to the population at large, increase the potential for hazardous materials incidents, or result in the release of hazardous materials to the environment.

4.11.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exist on the site. Although not anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would further minimize or eliminate adverse effects.

During grading and construction the use of hazardous materials would include substances such as gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. These materials would be used for the operation and maintenance of equipment, and directly in the construction of the facilities. Fueling and oiling of construction equipment would be performed daily. The most likely hazardous materials releases would consist of fuels, oil, and grease dripping from construction equipment. The small quantities of fuel, oil, and grease that could drip from construction equipment usually occur in relatively low toxicity and concentration. Typical construction Best Management Practices (BMPs) limit and often eliminate the effect of such accidental releases. Specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these measures, Alternative A would not result in significant adverse effects associated with hazardous materials during construction.

Operation

As described in **Chapter 2.0**, diesel fuel storage tanks would be needed for the operation of emergency generators at the casinos and fire pumps at the hotels. Fuel tanks would be housed above ground within the individual generator units. The storage tanks would have double walls with integrated leak detection systems. If a leak were to occur within the inner tank, the outer tank would contain the leak, while a pressure sensor would signal the leak on the indicator panel of the generator unit. Generator units would

be monitored by security personnel who would be on site at all times and trained in emergency response procedures. The generators would be located in areas easily accessed by maintenance and emergency personnel, near the service entrance/loading docks. These self-contained diesel fuel storage tanks would reduce the likelihood of release of a hazardous material.

During operation of the proposed facilities, the majority of waste produced would be non-hazardous. The small quantities of hazardous materials that would be utilized would include motor oil, hydraulic fluid, solvents, cleaners, lubricants, paint, and paint thinner. These materials would be utilized for the operation and maintenance of the casino, emergency generators, and other project facilities. The amount and type of hazardous materials that would be generated are common to commercial sites and do not pose unusual storage, handling, or disposal issues. Materials would be stored, handled, or disposed of according to state, federal, and manufacturer's guidelines.

As discussed in **Chapter 2.0**, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.2 Alternative B – Barstow Reduced Casino-Hotel Complex

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exist on the site. Although not anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would further minimize or eliminate adverse effects.

The amount and type of hazardous materials that would be stored, used, and generated during the construction of Alternative B are the same as those described under Alternative A. As discussed in **Subsection 4.11.1** above, BMPs for the storage and handling of hazardous materials are provided in **Section 5.11**. Adherence to these BMPs would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these measures, Alternative B would not result in significant adverse effects associated with hazardous materials during construction.

Operation

The amount and type of hazardous materials that would be stored, used, and generated during operation of Alternative B are the same as those described under Alternative A. Refer to **Subsection 4.11.1**.

As discussed in **Subsection 4.11.1** above, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.3 -ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exist on the site. Although not anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would minimize or eliminate adverse effects.

Hazardous materials used during construction would be similar to those described under Alternative A, although on a smaller scale due to the reduced size of this alternative. Refer to the discussion under **Subsection 4.11.1**.

Operation

The onsite wastewater treatment plant would require the delivery, storage, and use of hazardous materials, particularly the use of sodium hypochlorite (HSe, 2007). Sodium hypochlorite (bleach) is used in wastewater treatment, in household laundry detergents, and in photochemical and pulp and paper industries. Sodium hypochlorite ingestion can cause severe gastrointestinal corrosion. Inhalation can cause pulmonary edema. For the wastewater treatment plant, a weak (five percent strength) solution of sodium hypochlorite would be used to clean or inhibit biogrowth in the immersed membranes used to filter out solids. Sodium hypochlorite would be stored in a 55-gallon drum, within a chemical spill containment area inside the wastewater treatment plant building. The sodium hypochlorite would be pumped directly to a chemical dip tank when required for use.

Diesel fuel storage tanks would be needed for the operation of emergency generators at the casino. These tanks would be operated and maintained in a similar fashion to those for Alternative A. Refer to the diesel fuel storage tanks discussion under **Subsection 4.11.1**.

Hazardous materials that would be stored, used, and generated during operation of Alternative C would be similar to those described under Alternative A, although on a smaller scale due to the reduced size of this alternative. Refer to **Subsection 4.11.1**.

As discussed in **Subsection 4.11.1** above, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exists on the Alternative D site. Although not

anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would further minimize or eliminate adverse effects.

Hazardous materials used during construction would be similar to those described under Alternative A, although on a smaller scale due to the reduced size and decreased intensity of this alternative. Refer to the hazardous materials discussion under **Subsection 4.11.1**.

Operation

The onsite wastewater treatment plant would be operated in a similar fashion to the one for Alternative C. Refer to the wastewater treatment discussion under **Subsection 4.11.3**.

Hazardous materials that would be stored, used, and generated during operation of Alternative D would be similar to those described under Alternative A, although on a smaller scale due to the reduced size of this alternative. Refer to **Subsection 4.11.1**.

As discussed in **Subsection 4.11.1** above, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.5 -ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.12 AESTHETICS

This section identifies the direct effects associated with aesthetics that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.12**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.12**.

Assessment Criteria

Adverse effects to local and regional aesthetic values would occur if implementation would result in the inability for adjacent parcels to comply with local policies, degrade or diminish the aesthetics of visual resources such as scenic vistas, or introduce lighting that would substantially increase nighttime lighting in the area of existing conditions.

4.12.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Local Plans and Ordinances

According to the Municipal Services Agreement (MSA) between the City of Barstow and the Tribe, the Tribe shall adopt building standards and codes no less stringent than those adopted by the City. Development of Alternative A would generally conform to the guidelines contained in the Lenwood Specific Plan, as mandated by the MSA. Landscaping would be consistent with the climate and surroundings of the project area. Light fixtures would not extend above the roofline of the taller buildings, and the lighting would be designed to confine direct rays to the premises. Signage associated with Alternative A would be architecturally compatible with the buildings, and would be of appropriate size and content, in accordance with the guidelines set forth in the Lenwood Specific Plan. Development of Alternative A will be generally consistent with local plans and ordinances.

Visual Resources

An architectural rendering is provided as **Figure 2-5**. The development of Alternative A amidst the combination of commercial uses and undeveloped desert lands in the vicinity of the Barstow site would represent a change to the viewshed, and would be visible from several vantage points. The existing commercial/industrial development would serve to reduce the intensity of Alternative A's visual impact on the area, and as described above, the hotel and casino complex would be designed to create positive visual effects. Alternative A has been designed to avoid architectural features that may be especially incompatible with a non-urban setting. No local or state-designated scenic corridors would be affected by the implementation of Alternative A. Development of Alternative A would not result in significant adverse effects on visual resources.

SHADOW, LIGHT, AND GLARE

The existing commercial/industrial development adjacent to the site is a substantial source of light in the project area. Therefore, new lighting proposed under Alternative A would not result in significant adverse effects on shadow, light, and glare. Project design and recommended measures presented in **Section 5.12** would further minimize identified adverse effects.

4.12.2 -ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Local Plans and Ordinances

As indicated under Alternative A, above, development of Alternative B would generally conform to the guidelines contained in the Lenwood Specific Plan.

Visual Resources

As with Alternative A, the existing commercial/industrial development would serve to reduce the intensity of Alternative B's visual impact on the area. Development of Alternative B would not have a significant adverse effect on visual resources.

Shadow, Light, and Glare

Potential adverse effects associated with shadow, light, and glare from Alternative B would be similar to Alternative A. Project design and recommended measures presented in **Section 5.12** would further minimize or eliminate all identified adverse effects.

4.12.3 -ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Local Plans and Ordinances

Because aesthetic matters at the Los Coyotes site are under the jurisdiction of the Los Coyotes Tribal Council, development of Alternative C would have no adverse effects relating to local plans and ordinances.

Visual Resources

The development of Alternative C on the Los Coyotes site would represent a change to the viewshed. The only views of the casino would be from within the Los Coyotes Reservation. The casino would not be visible from other locations. No adverse effects to visual resources would occur.

Shadow, Light, and Glare

Alternative C would add a new source of light to the area, constituting moderate adverse effects on shadow, light, and glare. The aspects of overall project design and recommended measures presented in **Section 5.12** would further reduce identified adverse effects.

4.12.4 -ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Local Plans and Ordinances

Because aesthetic matters at the Los Coyotes site are under the jurisdiction of the Los Coyotes Tribal Council, development of Alternative D would have no adverse effects relating to local plans and ordinances.

Visual Resources

The development of Alternative D on the Los Coyotes site would represent a change to the viewshed. The only views of the campground would be from within the Los Coyotes Reservation. The campground would not be visible from other locations. No adverse effects to visual resources would occur.

Shadow, Light, and Glare

Alternative D would add a new source of light to the area; however, the amount of light generated by the campground would be considerably less than for Alternative C. Alternative D would not result in significant adverse effects on shadow, light, and glare. The aspects of overall project design and recommended measures presented in **Section 5.12** would further minimize or eliminate all identified adverse effects.

4.12.5 -ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.13 CUMULATIVE EFFECTS

4.13.1 INTRODUCTION

Cumulative effects are defined as effects to the environment resulting from the incremental effect of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

A cumulative effects analysis broadens the scope of analysis to include effects beyond those attributable solely to the implementation of the alternatives. The purpose of the cumulative effects analysis, as stated by the Council on Environmental Quality (CEQ) "is to ensure that federal decisions consider the full range of consequences" (CEQ, 1997a:3). The process of analyzing cumulative effects, or impacts, requires consideration of cumulative effects issues in each of the traditional components of the Environmental Impact Statement (EIS), including scoping, describing the affected environment, and determining environmental consequences. The incorporation of cumulative effects analysis also aids in the development of alternatives and appropriate mitigation measures.

The analysis in this section considers the incremental effects of the project alternatives on specific resources, ecosystems, and human communities that could occur in conjunction with other reasonably foreseeable actions, projects, and trends. As recommended by CEQ's *Considering Cumulative Effects*, only those potential cumulative effects that are considered to be relevant or consequential have been discussed in depth (CEQ, 1997a:12).

4.13.2 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

List of Potentially Cumulative Actions and Projects

Table 4.13-1 provides a list of the major development projects within the vicinity of the Barstow site that are under construction or reasonably foreseeable at the time of analysis. These projects were determined based on consultation with local government agencies, including the City of Barstow. **Figure 4.13-1** identifies the locations of these development projects in relation to the project site. The proposals total 4990 development units (du) and 1748.1 thousand square feet (ksf) of development.

Land Resources

The principal effects to land resources associated with countywide development would be localized topographical changes and soil attrition. Topographic changes may be cumulatively significant if the topography contributes significantly to the environmental quality with respect to drainage, habitat, or other values. Soil loss could be cumulatively considerable if the project alone would not result in significant loss of topsoil, but taken together with all other developments may result in significant depletion of available soils. Local permitting requirements for construction would address regional geotechnical and topographic conflicts, seismic hazards, and resource extraction availability. It is anticipated that approved developments will follow appropriate permitting procedures. As discussed in

TABLE 4.13-1
CUMULATIVE DEVELOPMENT IN BARSTOW

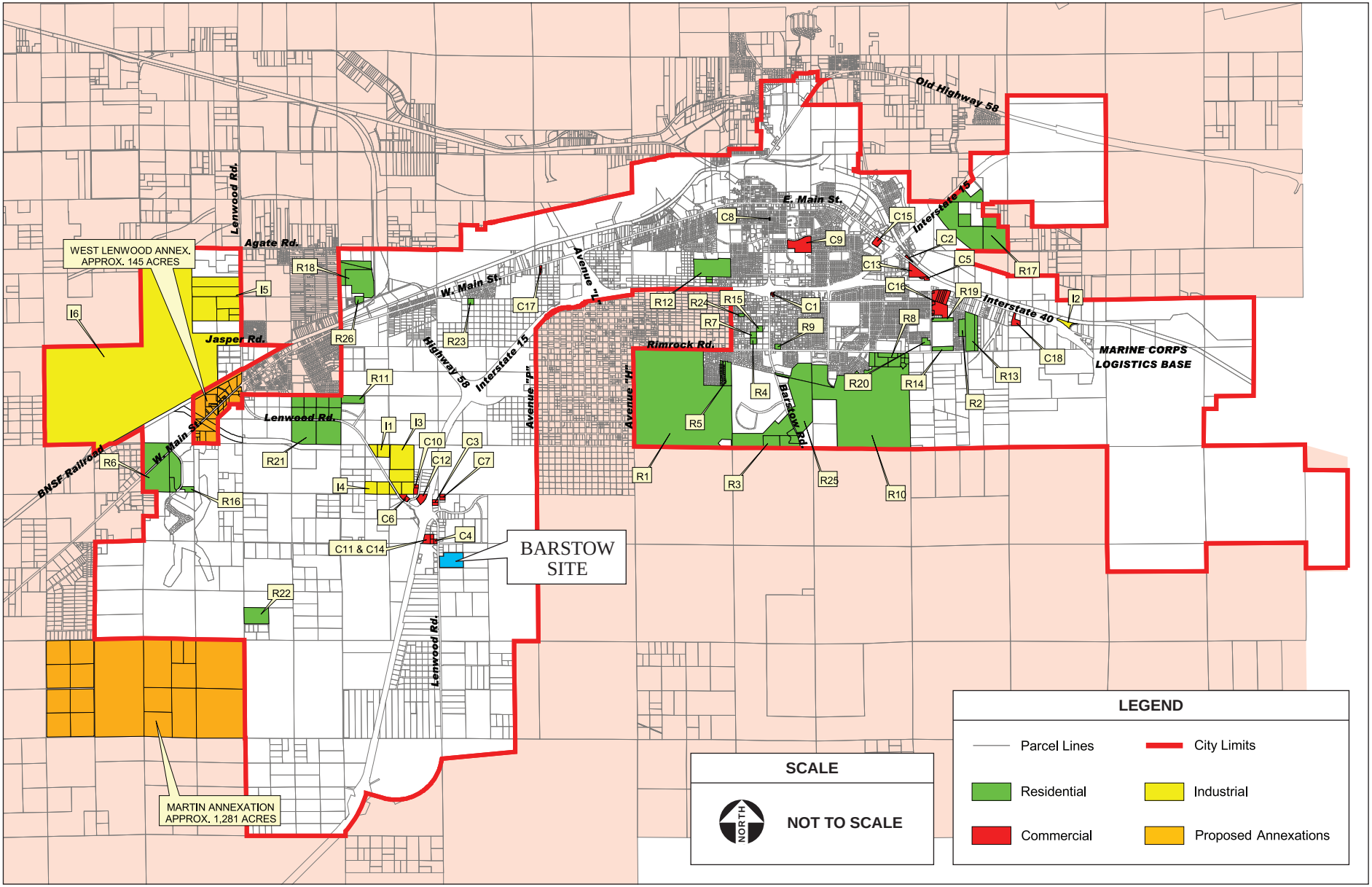
Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
R1	*Rimrock Ranch Specific Plan*	This 557-acre subdivision proposes to revise the Rimrock Specific Plan to allow for an increase from the approved maximum of 1,450 dwelling units to a maximum of 1,850 dwelling units. Within this proposal is the request for approval of approximately 360 single family units on approximately 557.64 acres. This development would be located east of Avenue "H," south of Rimrock Road, west of Agrita Avenue, and north of the City Limits.	1,850 DU	--
R2	*MGM Development*	This 7.75-acre proposal would develop approximately 44 single-family residential units. The development would be located south of Amory Road, north of Rimrock Road, east of Arbor Way and along the northerly extension of Granada Hills Avenue.	44 DU	--
R3	*A & A Surveying & Mapping/CF Properties*	This 76.64-acre proposal would develop approximately 20 acres into single- and multi-family residential units, with the balance a solar field. The development would be located west of Barstow Road, north of the City Limits, east of Agrita Avenue, and south of the Barstow Community College.	279 DU	--
R4	*Mark A. Nourse*	This 2.5-acre proposal would develop approximately 10 residential units. The development would be located along the south side of Cypress Street between Pine Avenue and Buckthorn Drive.	10 DU	--
R5	*The Highlands*	This 18.25-acre proposal would develop approximately 71 single-family residential units. The development would be located west of Agarita Avenue, east of Garnet Avenue, and south of Rimrock Road.	21 DU	--
R6	*Robert Merrit*	This 36.62-acre proposal would develop multi-family residential development, a condominium, and rental apartment subdivision of a planned seniors' community at the southwest and northwest corners of West Main Street and Country Club Drive		
R7	*Tim McCandless*	This 0.26-acre proposal would develop approximately 10 single-family residential units. The development would be located north of Cypress Street, east of Pine Avenue, and west of Buckthorn Drive.	10 DU	--
R8	*Rimrock Associates*	This 40.02-acre proposal would develop approximately 154 lots from five parcels for future single-family residential development. The development would be located south of Rimrock Road and west of the City Limits.	154 DU	--
R9	*Mark Heldreth*	This 2.13-acre proposal would develop approximately 8 single-family residential units. The development would be located at 561 Rimrock Road.	8 DU	--
R10	*Century Village*	This 478.79-acre proposal would develop approximately 450 residential units. The development would be located south of Zion Drive, east of Monterey Avenue, west of Opal Avenue, and north of Veterans Parkway.	450 DU	--

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
R11	*Lynn Potter and Dianna Powell*	This 12.04-acre proposal would construct 29 single-family residential units. The development would be located north of Tortoise Road and west of Industrial Way. Proposed solar field may replace 24 proposed single-family residences.	29 DU	--
R12	*Corman-Leigh Communities, Inc.*	This 46.11-acre proposal would develop approximately 178 single-family residential units. The development would be located west of Mount Vernon Avenue, south of Thomson Elementary School, Henderson Elementary School, and north of Interstate 15.	178 DU	--
R13	*Desert Skys, LLC and Sun Ridge CA, LLC*	This 31.23-acre proposal would develop approximately 133 single-family residential units. The development would be located north of Rimrock Road, south of Armory Road, and east of Granada Hill Avenue.	133 DU	--
R14	*Reigel Properties*	This 5.26-acre proposal would add 45 spaces to an existing mobile home park. The development is located south of 701 Montara Road, west of Arbor Way, and north of Rimrock Road.	45 DU	--
R15	*Project Properties Number One, LLC*	This 2.5-acre proposal would develop approximately 11 single-family residential units. The development would be located south of Windy Pass, east of Buckthorn Avenue, west of Wisteria Avenue, and north of Cypress Street.	11 DU	--
R16	*Merrell-Johnson Engineering for Dennis Rasmussen*	This 3.86-acre proposal would develop 12 single-family residential units. The development would be located east of Country Club Drive, south of Sweeten Lane, and west of Gerrymander Road.	12 DU	--
R17	*Pacific Holt Corporation*	This 150.55-acre proposal would develop a 301 single-family residential subdivision. The development would be located south of Soapmine Road, west of Webster Road, east of Interstate 15, and north of the Mojave River.	301 DU	--
R18	*Stephen A Carter for Hillcrest Development*	This 68-86-acre proposal would develop 219 single-family residential units. The development would be located west of Jasper Road, east of Cedar Road, and south of Agate Road.	219 DU	--
R19	*Global Premier Development/AMG for Nouri Shahram*	This 4.97-acre proposal would develop a 73-unit apartment complex. The development would be located east of Montara Road and south of Armory Road. (Calico Apartments)	73 DU	--
R20	*Global Premier Development/AMG for Hank & Shirley Barto*	This 3.7-acre proposal would develop a 73-unit apartment complex. The development would be located west of Montara Road and north of Rimrock Road.	73 DU	--
R21	*Cambridge Homes, Inc. for Dora Land*	This 156-acre proposal would amend the Lenwood Specific Plan to allow for residential development. The development would be located west of Tortoise Road, north of San Bernardino County Flood Control Channel, south of 4th Street and east of Elizabeth Street.	456 DU	--

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
R22	*Hall & Foreman Inc. for Nehemas Imperio et. Al.*	Subdivide one 26.7-acre parcel into four lots (for ownership purposes only – no development is proposed at this time). The parcel is located east of Melody Avenue, west of Cynthia Avenue, and north of Daniels Road	--	--
R23	*Project Property Number One*	Subdivide one 2.5 acre parcel into four lots. No development is proposed at this time. The parcel is at the southeast corner of Norwich Avenue and the logical extension of Woodhill Avenue.	--	--
R24	*Adrian Rodriguez*	Subdivide one 1.25 acre parcel into 3 lots. No development is proposed at this time. The parcel is on 1110 Madrona Drive	--	--
R25	*Harrison Development*	This 83-acre proposal would revise the General Plan land use designation of the project parcels from Neighborhood Residential (RN) and Neighborhood Residential/Specific Plan (RN/SP) to RN and Mixed Use (MU), to revise the zoning designation from Mixed Land Use (MU) to Single-Family Residential (RS-6) and MU. The proposal would also develop approximately 379 single-family residential units.	379 DU	--
R26	*Barstonian Apartments*	Expansion of an existing 96 unit apartment complex on a 4.07-acre parcel by an additional 60 units. The complex is located at 3325 Jasper Road north of Jasper Road and west of Citrine Road	60 DU	--
C1	*Anil Mohan*	This 0.91-acre proposal would develop a fast food restaurant with two drive through-lanes. The development would be located at Barstow Road and Deseret Avenue, south of Interstate 15.	--	3 KSF
C3	*Khurshid Chohan and Ashka Patel/Imran Patel*	This 2.12-acre proposal would develop an approximately 103-room hotel. The development would be located at 2600 Fisher Boulevard. (La Quinta Hotel)	103 DU	53.5 KSF
C4	*Ino Cruz and Larry Webster*	This proposal would develop two drive-through restaurants on an existing 2.97 acre parcel with an existing auto service center, gas station, convenience store, and car wash. The parcel is located at the northwest corner of Lenwood Road and Tanger Way.	--	5.8 KSF
C5	*HCP Engineering/DKN Hotels*	This proposal would construct one additional porte-cochere at an existing motel on a 1.68 acre parcel at 1984 East Main Street	--	--
C6	*Dan Plies*	This proposal would expand the existing gas station on the 1.1-acre parcel at 2596 Commerce Parkway to include a truck stop.	--	10.3 KSF

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
C8	*Anthony Leonard*	This 0.30-acre proposal would develop a six unit office building. The development would be located at 307 Barstow Road.	--	6.4 KSF
C9	*Barstow Community Hospital*	This 19.7-acre proposal would develop a new hospital with a total of 118,400 square feet at buildout. The development would be located on the south side of East Mountain View Street and along the east side of South Seventh Street.	--	118.4 KSF
C10	*Dan Plies*	This 3.3-acre proposal would develop a 92-unit hotel. The development would be located at 2550 Commerce Parkway.	92 DU	58.5 KSF
C13	*KO Architects for TT Group, Inc.*	This proposal would demolish a portion of an existing mall to build a new 6.700 square foot retail building and renovate the existing buildings on the 13.74-acre parcel at 1876 E. Main Street. This would be a net reduction in square footage.	--	-15 KSF
C15	*JWDA Architect & May Garden and Associates, LLC*	This proposal would develop a new fast food restaurant (Yoshinoya's Drive-Thru Restaurant) with drive through. The development would be located at 1520 E. Main Street.	--	2.9 KSF
C16	*Walmart Real Estate Business Trust*	This proposal would subdivide 10 parcels into 9 different lots, a total of 28.23 acres, and expand an existing structure by 86,000 square feet.	--	86 KSF
C17	*Vito Valenti, III*	This proposal would expand the Barstow Motorcycle Center on the 1.1 acre parcel at 2380 West Main Street at LaVerne Avenue from 6,200 square feet to 13,496 square feet	--	7.3 KSF
C18	*Wayne & Diane Francis /Interstate Fleet Service*	This 4.25-acre proposal would develop a towing, storage, and impound yard with truck, automobile, and RV repair and sales, with a small proposal filling station and outside wash bay. The development would be located at 2460 E. Main Street.	--	10.8 KSF
I1	*Robert Gonzales*	This 18.16 acre proposal would allow for the phased construction of a facility that would manufacture and sell block, pavers, concrete products, and building services. The development would be located at 2995 Lenwood Road.	--	15.2 KSF
I2	*Rock Service Products*	This proposal would subdivide one 3.65 acre parcel into two lots north of Interstate 40 and south of the Burlington Northern/Santa Fe railroad right-of-way	--	--
I3	*Michael Gilman*	This 51-acre proposal would expand an existing truck terminal to include cold storage. The development proposes 66,963 SF of warehouse uses, and 18,038 SF of office uses at 2951 Lenwood Road (Old Yellow Freight Building)	--	85 KSF
I5	*Walmart Stores East c/o Lynn McAlexander Agent: GSNT c/o Robert Ritter, Esq.*	This 142-acre proposal would adopt the West Barstow Specific Plan #4 to develop a Walmart Distribution Center. The development would be located west of Lenwood Road, north of Jasper Road, and south of Agate Road.	--	900 KSF

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
I8	*Master Planned Barstow Industrial Park*	This 1,185-acre proposal would require a General Plan Amendment and zone change to establish a Specific Plan for a Master Planned Industrial Park. The development would be located west of Lenwood Road and north of the Santa Fe Rail Lines.	Not Yet Established	400 KSF
Source: City of Barstow, 2010; AES, 2010				



SOURCE: City of Barstow, 8/1/2009; AES, 2011

Figure 4.13-1
Cumulative Development Projects

Section 5.0, the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code in effect at the time of any project development. In addition, the project must comply with the requirements of the Construction Stormwater General Permit, which requires BMPs be chosen and implemented to address water quality degradation by preventing erosion, as outlined in **Section 5.2**. Therefore, implementation of Alternative A would not result in significant adverse cumulative effects to land resources.

Water Resources

Surface Water and Flooding

Cumulative effects to surface water may take place as a result of increased stormwater flows from additional impervious surfaces constructed within the area. Approved projects in the vicinity of Alternative A would be required to follow the City of Barstow's General Plan (General Plan) policies and municipal code provisions. Specifically, projects would comply with the provisions of Section VI.8 Storm Drainage, which includes evaluating the impacts of all new development and expansion projects on storm runoff and requiring developers to pay the costs of any necessary upgrades to existing drainage facilities. As discussed in **Subsection 2.2.1**, drainage facilities have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash and minimizing impacts to site drainage from changes in topography. Therefore, development of Alternative A would not result in adverse cumulative effects on surface water features.

Additional development in combination with Alternative A could result in cumulative adverse effects to floodplain management if structures were to impede floodways or raise flood elevations. Approved projects would be required to follow the municipal code, Title 15 of which requires development permits within special flood hazard areas (see **Section 3.2**) and special construction provisions that would require that encroachments within special flood areas would not result in any increase in flood levels or impede floodplain management. Additionally, approved projects would be required to pay flood control channel development fees. Development of Alternative A would not result in significant adverse cumulative effects to floodplain management.

Groundwater

Groundwater effects of individual developments could result in cumulative adverse effects if the total water demand of approved projects, including Alternative A, exceeds pumping capacity of groundwater wells. It is assumed that approved projects in the vicinity of Alternative A would meet water demand through connection with the Golden State Water Company. Local projects would abide by Section II.1, Water Resources, of the City's General Plan, which requires new development and expansion projects outside of existing service areas to purchase additional water supplies to offset the potential burden to the existing system. Additional water would be provided by the California State Water Project and would offset the need for additional groundwater use. Alternative A would not result in significant adverse cumulative effects on groundwater resources.

Water Quality

Concurrent construction of Alternative A and other relevant projects identified above could result in temporary cumulative effects to water quality. Construction activities could result in erosion and sediment discharge to surface waters, potentially effecting water quality in downstream water bodies. In addition, construction equipment and materials have the potential to leak, thereby discharging oils, greases, and construction supplies into stormwater, potentially affecting both surface water and groundwater. To mitigate potential adverse effects, approved developments would be required to implement erosion control measures and construction BMPs via a site-specific SWPPP in compliance with the State of California General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). With the implementation of measures identified in **Section 5.2**, Alternative A would not result in adverse cumulative effects on water quality.

Air Quality

Air Pollutant Trends

Cumulative air quality effects are assessed by comparing the incremental emissions associated with Alternative A to San Bernardino County-wide emissions forecasted by the California Air Resources Board (CARB) for long-term cumulative conditions (2020, the farthest planning horizon for county-wide emission forecasts). The County's emissions trends from 1975 to 2020 are presented in **Table 4.13-2**.

Ozone precursors (ROG and NO_X) had a small jump between 1975 and 1990. Since 1990 emissions have decreased consistently and are projected to decrease further in the future. PM_{10} emissions increased slightly from 1975 to 1990, only to drop off in 1995; however, PM_{10} emissions are projected to increase slightly over the next 25 years. The three pollutants discussed above are governed by state implementation plans (SIP) and therefore should decrease in the future.

TABLE 4.13-2
SAN BERNARDINO COUNTY EMISSIONS TRENDS

Pollutants	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
	tons per day									
ROG	195	213	227	214	179	153	119	101	94	92
NO_x	248	319	267	288	254	259	214	183	162	152
PM_{10}	177	189	234	241	209	210	204	211	223	234
Source: CARB, 2009d.										

Operational (2030) Conditions

Operation of Alternative A during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-3** shows operation and area emissions of Alternative A in year 2030, criteria pollutant emissions are ~~shown as a percentage of County total emissions~~compared to *de minimus* levels.

TABLE 4.13-3
ALTERNATIVE A LONG-TERM (2030) CONDITIONS

Source	ROG	NOx	PM_{10}
	tons per year		
Area	0.45	0.53	0.00
Mobile	13.98	14.10	60.05
Total Emissions	**14.43**	**14.63**	**60.05**
De Minimus Levels	*25*	*25*	*100*
Exceedance	No	No	No
Percentage of Countywide Emissions	***0.044***	***0.027***	***0.070***
Source: URBEMIS 2007 (**Appendix L** of the Draft EIS/TEIR).			

General Conformity Review

Past, present and future development projects, contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone and PM_{10}. Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

Since no emission projections are available for San Bernardino County in 2030, 2020 emissions were used for comparison. **Table 4.13-3** shows that emissions associated with Alternative A ~~would not exceed 10~~are a relatively low percentage of San Bernardino County's emission inventory for ROG, NOx, and PM_{10} and project emissions do not exceed *de minimus* levels. When considered as a portion of the County's overall emissions, Alternative A makes a minimal contribution to regional air quality emissions. Furthermore, regional projects would be required to comply with the provisions of the Mohave Desert Air Quality Management District (MDAQMD) and implement dust controls in response to the provisions of Section II.4 of the General Plan. With the implementation of mitigation measures identified in **Section 5.3**, Alternative A would not result in adverse cumulative effects to air quality.

Climate Change

Climate change would not only have global impacts, such as more erratic weather patterns, more frequent droughts, and rising sea level, but climate change would cause regional and local impacts as well. Climate change has the potential to reduce the snow pack in the mountain regions, increase drought periods, and reduce water tables in California, potentially directly affecting the project site (CARB, 2007c).

Development of Alternative A would result in an increase in GHG emissions related to mobile sources (trips generated), area sources (components of Alternative A that directly emit GHG), and indirect sources related to electrical power generation.

Methodology

Two recent federal court decisions (*Massachusetts v. Environmental Protection Agency*, U.S., 1275 S.Ct. 1438, 1462 [2007] and *Center for Biological Diversity v. National Highway Safety Administration*, 508 F.3d 508 [9th Cir. 2007]) and slowly increasing scientific consensus have resulted in general guidance regarding appropriate GHG analysis (**Section 3.3**).

The approach used herein involves a combination of quantitative and qualitative analysis focusing on the project's impact on federal and California's efforts to reduce cumulative statewide GHG emissions. The following analysis is consistent with the CEQ's Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, released on February 18, 2010, which requires that a NEPA analysis of climate change quantify project-related GHG emissions and mitigate those emissions, particularly if the project is projected to directly emit greater than 25,000 metric tons (MT) per year of carbon dioxide equivalence (CO_2).

~~.~~

~~As noted in **Section 3.3**,~~ Climate change~~global warming~~ is a global issue that is not being caused by any single development project, but by global increases in atmospheric GHG concentrations. Thus, ~~global warming~~climate change is most effectively addressed on a global or regional level. California's global warming policies and legislation (most notably Executive Order S-3-05 and AB 32) are intended to be regional approaches to ensure that statewide emissions are reduced substantially in the future (to levels much lower than existing levels).

EPA and CARB approved URBEMIS 9.2.4 emissions modeling software was used to estimate area, construction, and mobile emissions resulting from the proposed alternatives. CH_4 and N_2O emissions from mobile sources were estimated using emission factors from the Local Government Operations Protocols (LGOP, 2008) and converted to CO_2e. Indirect emissions, which include electricity use, water conveyance, solid waste, and wastewater conveyance and treatment, were estimated using LGOP emission factors.

The CARB and the Climate Action Team (CAT) ~~have recently~~ identified approximately 126 strategies and measures that may be utilized by the state to meet its emissions reduction targets in 2010, 2020, and 2050. Most of these measures focus on statewide action meant to curb emissions by changes in statewide planning or policies rather than changes to individual development projects. However, some of the measures may be directly applicable to specific industries or individual commercial developments. Should a development alternative comply with all directly applicable measures, the alternative would support the State's efforts to significantly reduce its cumulative contribution to global climate change (to levels recommended by the International Panel on Climate Change (IPCC) and CARB's Climate Change Scoping Report [CARB, 2008]) and the associated impacts.

F~~Thus, f~~or the purposes of this analysis, cumulative contributions associated with a development alternative would be less than significant if after mitigation the project emits 25,000 MT or less of CO_2e per year and complies with the strategies currently identified by CARB or CAT to comply with Executive Order S-3-05 or AB 32, provided that the strategies can be applied to proposed development alternatives.

Carbon Dioxide Equivalent

Carbon dioxide equivalent (CO_2e) is a method by which GHGs other than CO_2 are converted to a CO_2-like emission value based on a heat-capturing ratio. As shown in **Table 4.13-4**, CO_2 is used as the base and is given a value of one. CH_4 has the ability to capture 21 times more heat than CO_2; therefore, CH_4 is given a CO_2e value of 21. Emissions are multiplied by the CO_2e value to achieve one GHG emission value. By providing and common measurement, CO_2e provides a means for presenting the relative overall effectiveness of emission reduction measures for various GHGs in reducing project contributions to global climate change.

TABLE 4.13-4
GREENHOUSE GAS CO_2 EQUIVALENT

Gas	CO_2e Value
CO_2	1
CH_4	21
N_2O	310
HFCs/PFCs[1]	6,500
SF_6[1]	23,900

Note: CO2e =Carbon dioxide equivalent
[1] High-global warming potential pollutants
CH4 = methane, N2O = nitrous oxide
HFCs/PFCs = hydroflourocarbons/perflourocarbons
SF6 = sulfur hexaflouride
Source: BAAQMD, 2006; AES, 2010.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative A are shown in **Table 4.13-5.** ~~EPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. GHGs emitted during construction of Alternative A would be 1,877 tons per year (tpy) of CO_2e. **Table 4.13-5** shows the estimated operational emissions. Once construction is completed, the project would emit approximately 36,315 tpy of CO_2 from mobile and area sources. CH_4 and N_2O emissions from mobile sources were estimated using emission factors from the Climate Change Action Registry and converted to CO_2e. CH_4 and N_2O emissions from mobile sources are estimated to be approximately 1,295 tpy CO_2e. Indirect emissions were estimated using Climate Change Action Registry emission factors and are estimated at 15 tpy CO_2e. Total annual emissions during operation of the project are estimated at approximately 37625 tpy of CO_2e.~~ The total annual project-related GHG emissions are estimated to be 38,949 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site),

water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.~~0049~~ 0039 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.~~0000031~~ 0000029 percent. While Alternative A's contributions to statewide and global emissions are miniscule, primarily because the Alternative A would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. ~~This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.~~

TABLE 4.13-5
PROJECT-RELATED GHG EMISSIONS

Alternative A	**GHGs**	**CO_2e Emissions (ST)**	**Conversion Factor (ST/MT)**	**GHG Emissions in CO_2e (MT)**
Direct				
Construction	CO_2	1,877	0.91	1,708
Area	CO_2	629	0.91	572
Subtotal Direct GHG Emissions				*2,280*
Indirect				
Mobile	CO_2	35,687	0.91	32,475
Mobile	CH_4/N_2O	389	0.91	354
Electricity Usage	CO_2			2,060
Water and Wastewater	CO2e			24
Solid Waste	CO2e			1,756
Subtotal Indirect GHG Emissions				*36,669*
Total Project-Related GHG Emissions				**38,949**
GHG Reductions from Mitigation				
Reduce Construction Equipment Idling (MM 5.3-30)				34
Install Low Flow Facilities (MM 5.3-32)				1
Reduce Waste Stream by 50% (MM 5.3-31)				878
Install Energy Efficient Lighting (MM 5.3-35)				618
Install Solar Water Heaters (MM 5.3-39)				412
Federal and State Mobile Emission Reduction Strategies				985
Purchase GHG Emissions Credits (MM 5.3-41)				11,021
Subtotal GHG Reductions				*13,949*
Total Mitigated Project-Related GHG Emissions				**25,000**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

~~TABLE 4.13-5~~

~~ESTIMATED ALTERNATIVE A OPERATIONAL GHG EMISSIONS~~

~~CO_2 Emissions[1]~~					
~~Mobile Sources[1]~~		**~~Area Sources[1]~~**			**~~Total CO_2e~~**
~~Tons per year~~		**~~Tons per year~~**			**~~Tons per year~~**
~~35,686~~		~~629~~			~~36,315~~
~~CH_4 and N_2O Emission from Mobile Sources[2]~~					
~~Emission Factor (CO_2/CH_4/N_2O)~~	**~~Miles Traveled~~**	**~~CH_4~~**		**~~N_2O~~**	**~~Total CO_2e~~**
~~g/mile~~	**~~miles/day~~**	**~~tons per year~~**			
~~552.08/0.05/0.05~~	~~190,464~~	~~119~~		~~1,176~~	~~1,295~~
~~Indirect GHG emissions[2]~~					
~~Emission Factor (Kg of CO_2/CH_4/N_2O)~~	**~~Estimated kW-hr Usage[3]~~**	**~~CO_2~~**	**~~CH_4~~**	**~~N_2O~~**	**~~Indirect CO_2e~~**
~~lb/MW-hr~~	**~~MW-hr/Year~~**	**~~Tons per year~~**			
~~804.54/0.006/0.0037~~	~~75~~	~~15~~	~~0.00~~	~~0.00~~	~~15~~
~~Total Operation CO_2e tons per year~~					**~~37,625~~**

~~Note: CO_2= Carbon dioxide; GHG= Green House Gases; CO_2e= Carbon dioxide equivalent; CH_4= Methane; N_2O= Nitrous oxide; lb= pound; MW-h= megawatt-hour~~

~~[1] Estimated from USEPA and CARB approved URBEMIS air quality program (**Appendix L**)~~

~~[2] Emission factors from Climate Change Action Registry~~

~~[3] Estimated using 4,500 kilowatts-hours (kW-hr)/month of power used.~~

~~Source: URBEMIS, 2007; California Climate Action Registry, 2009.~~

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative A, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative A (refer to **Table 4.13-6**). The other policies do not apply to Alternative A because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-6**, Alternative A would not be in compliance with all three applicable state climate change strategies. Furthermore, direct and indirect CO_2e emissions would be above the CEQ's 25,000 MT per year of CO_2e reporting standard. T~~; t~~herefore, this is a potentially significant cumulative ~~impact~~ effect and mitigation is recommended in **Section 5.3** which would reduce the potential for adverse cumulative effects associated with climate change.

TABLE 4.13-6
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative A would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Solid waste services are expected to be provided by the City of Barstow or County of San Bernardino, which are subject to the state's recycling requirements. The development would not affect City or County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative A would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill~~, CARB= California Air Resource Board~~ Source: Climate Action Team, 2006	

Biological Resources

Wildlife and Habitats

Implementation of Alternative A in conjunction with additional local projects could result in cumulative adverse effects to biological resources if habitats for special-status species were destroyed. However, potential adverse effects from individual projects would be avoided through compliance with applicable federal and state regulations. Additionally, approved projects would follow the provisions of Section II.5, Biological Resources, of the General Plan, which requires site-specific studies prior to development activities to determine precise mitigation necessary to preserve and enhance biological resources. With the implementation of the mitigation measures outlined in **Section 5.4,** Alternative A would not result in adverse cumulative effects to biological resources.

Mojave Desert Tortoise

There are a number of large scale renewable energy projects proposed in the Mohave Desert that have the potential to result in adverse cumulative effects to the Mojave Desert tortoise or other sensitive habitat for special status species. These projects, if approved, -would result in the conversion of thousands of acres of potential habitat. The 16.51 acres of Mohave Creosote Brush Scrub habitat that would be converted

under Alternative A would be a miniscule contribution to this overall cumulative effect. Furthermore, the Barstow site is located within the city limits adjacent to existing commercial development and is subject to disturbances from adjacent land uses, including the off-road vehicle recreation area, and thus does not contain high quality habitat for this species. Mitigation has been recommended within Section 5.4 to avoid or minimize potential effects to Mohave Desert Tortoise. Therefore, given the relatively low area of land that would be impacted as a result of Alternative A, this is considered a less than significant cumulative effect.

Waters of the U.S.

As discussed in **Section 4.4**, implementation of Alternative A would not result in adverse effects to waters of the U.S. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative A would not contribute to adverse cumulative effects to waters of the U.S.

Cultural Resources

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. No significant cultural resources were identified within or adjacent to the Barstow site. However, the records search and archival research indicate that the study area is in a region moderately sensitive for both prehistoric/pre-contact resources and historic-period resources. Based on this sensitivity, Alternative A may affect previously unknown buried archaeological resources. As discussed in **Section 4.5**, direct effects to unknown cultural resources associated with Alternative A would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.5**. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. With the implementation of the mitigation measures outlined in **Section 5.5**, Alternative A would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Cumulative socioeconomic effects could occur in the project area as the result of developments that affect the lifestyle and economic well being of residents. When considered with other growth in San Bernardino County through 2030, there may be cumulative socioeconomic effects including impacts to the local labor market, housing availability, schools, increased costs due to problem gambling, and impacts to local government. These effects would occur as the region's economic and demographic characteristics change, as the population grows, and specific industries expand or contract. Alternative A would introduce new economic activity in the Barstow area, including jobs and revenues, which would be a beneficial effect to the region. Additionally, Alternative A would implement mitigation measures outlined in **Section 5.6** which would reduce the potential for adverse socioeconomic effects that could result from the project. Further, planning documents for the County will continue to designate land uses for businesses, industry, and housing, as well as plan public services which would anticipate and accommodate growth in the region. Therefore, with mitigation, Alternative A would not contribute to adverse~~no significant~~ cumulative socioeconomic effects~~ would result~~.

Transportation/Circulation

Methodologies

To assess the cumulative transportation effects of the project under cumulative traffic conditions, project traffic is combined with existing traffic, area-wide growth, and other foreseeable developments. The 2004 Regional Transportation Plan's (RTP) Socioeconomic forecast, adopted by the Southern California Association of Governments Regional Council in April, is the approved growth forecast at the subregional level. According to these growth estimates, a rate of approximately 2.45 percent per year would occur between the years 2005 and 2035. RTPs are the industry standard used to predict growth for freeways and major arterial roadways. Therefore, for this analysis a conservative 2.5 percent per year growth rate was used. The detailed analysis of traffic volumes generated by cumulative development is provided in **Appendix H** of the Draft EIS/TEIR. Refer to **Section 4.7** for a detailed description of the trip generation and trip distribution methodologies for Alternative A.

Cumulative Background Traffic Conditions

Cumulative Background Intersection Operations

Table 4.13-7 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under cumulative background traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections is provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 4.13-7
2035 CUMULATIVE BACKGROUND INTERSECTION CONDITIONS

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	14.6	B	14.4	B	14.9	B	14.9	B
2. Lenwood Rd./Main St.	TS	30.6	C	38.1	D	36.4	D	36.2	D
3. Main St./SR-58 EB Ramps	TS	3.7	A	4.1	A	3.5	A	3.5	A
4. Main St./SR-58 WB Ramps	TS	11.6	B	17.2	B	14.5	B	15.2	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.5	B	13.0	B	14.1	B	12.1	B
6. Lenwood Rd./I-15 NB Ramps	TS	23.9	C	23.5	C	29.4	C	21.3	C
7. Outlet Center Dr./I-15 SB Ramps	OWSC	9.8	A	11.1	B	11.8	B	10.5	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.3	A	8.9	A	9.8	A	9.0	A
9. Lenwood Rd./Mercantile Way	TS	37.4	D	37.6	D	38.3	D	37.9	D
10. Lenwood Rd./Project Access	-	-	-	-	-	-	-	-	-
11. Factory Outlet Ave/Mercantile Way	OWSC	8.6	A	9.0	A	8.9	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Bold denotes poor LOS.
Source: LL&G, 2010.

Cumulative Background Roadway Segments

Volume to capacity ratios and LOS for cumulative background conditions have been calculated for the study area roadway segments and are shown in **Table 4.13-8**. As shown in the table, all of the study roadway segments are projected to operate within an acceptable LOS under cumulative background traffic conditions without the project.

TABLE 4.13-8
CUMULATIVE BACKGROUND ROADWAY SEGMENT CONDITIONS

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.54	A
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.27	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.25	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.21	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Cumulative Background Freeway Segments

Volume to capacity ratios and LOS for the cumulative background conditions have been calculated for the study area freeway segments and are shown in **Table 4.13-9**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under cumulative background traffic conditions without the project.

TABLE 4.13-9
CUMULATIVE BACKGROUND FREEWAY SEGMENT CONDITIONS

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~862~~679	0.~~634~~513	~~D~~C	B~~C~~
SR-58 to Lenwood Road	4	9,200	0.415	0.313	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.788	0.583	C	B
I-15 Southbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~979~~762	0.~~862~~664	~~E~~C	~~D~~C
SR-58 to Lenwood Road	3	6,900	0.621	0.525	C	B
Outlet Center Drive to Hodge Road	3	6,900	0.898	0.788	D	C

Notes: V/C = volume to capacity ratio.
Bold denotes poor LOS.
Source: LL&G, 2010.

Cumulative Background Plus Alternative A Traffic Conditions

Cumulative Intersection Operations

Table 4.13-10 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under cumulative background plus Alternative A traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background plus Alternative A traffic conditions, except for the following intersection:

- Lenwood Road at Project Access (Weekday and Saturday, Mid-Day and PM peak hours)

Mitigation provided in **Section 5.7** would reduce the project's impact to a less than significant effect. Weekday and Saturday cumulative peak hour turning volumes are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 4.13-10
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE A INTERSECTION CONDITIONS

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	14.6	B	14.4	B	15.7	B	15.1	B
2. Lenwood Rd./Main St.	TS	30.8	C	39.0	D	37.4	D	37.2	D
3. Main St./SR-58 EB Ramps	TS	4.2	A	4.6	A	4.2	A	4.2	A
4. Main St./SR-58 WB Ramps	TS	11.6	B	17.6	B	14.5	B	15.2	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.5	B	14.8	B	21.0	C	13.4	B
6. Lenwood Rd./I-15 NB Ramps	TS	23.9	C	23.5	C	36.4	D	21.7	C
7. Outlet Center Dr./I-15 SB Ramps	OWSC	11.8	B	16.3	B	25.3	D	20.1	C
8. Outlet Center Dr./I-15 NB Ramps	OWSC	10.3	B	9.6	A	11.5	B	10.3	B
9. Lenwood Rd./Mercantile Way	TS	37.6	D	38.1	D	39.6	D	38.1	D
10. Lenwood Rd./Project Access.	OWSC	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.6	A	9.0	A	8.9	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Bold denotes poor LOS.
Source: LL&G, 2010.

Cumulative Roadway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative A traffic conditions have been calculated for the study area roadway segments and are shown in **Table 4.13-11**. As shown in the table, all of the study roadway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative A traffic conditions.

TABLE 4.13-11
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE A ROADWAY SEGMENT CONDITIONS

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.75	B
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.61	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.46	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.42	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Cumulative Freeway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative A traffic conditions have been calculated for the study area freeway segments and are shown in **Table 4.13-12**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative A traffic conditions.

TABLE 4.13-12
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE A FREEWAY SEGMENT CONDITIONS

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~874~~685	0.~~651~~521	~~D~~C	~~C~~B
SR-58 to Lenwood Road	4	9,200	0.424	0.326	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.818	0.616	D	B
I-15 Southbound						
L Street to ~~Lenwood Road~~SR-58	3	6,900	0.~~996~~771	0.~~881~~654	~~E~~C	~~D~~C
SR-58 to Lenwood Road	3	6,900	0.638	0.544	C	B
Outlet Center Drive to Hodge Road	3	6,900	0.919	0.818	D	D

Notes: V/C = volume to capacity ratio.
Bold denotes poor LOS.
Source: LL&G, 201~~0~~1.

Ramp Diverge Operations

Tables 2, 4, and 15 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis in the cumulative year 2035 at I-15 NB/SB off-ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, the diverge operations at the northbound and southbound off-ramps are calculated to operate at acceptable levels of service under cumulative year conditions both with and without each of the proposed project alternatives during the weekday peak hours, and Saturday peak hours, and Sunday AM peak hour. However, as shown in the

Table 15 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would exceed the County's significance threshold of LOS D at the I-15 southbound off-ramp in the cumulative year 2035 both with and without the addition of traffic generated by Alternative A. Mitigation measures provided in Section 5.7 would minimize Alternative A's contribution to this on-going cumulative adverse traffic condition. Therefore, with mitigation this cumulative effect is considered less than significant.

Intersection Queuing Operations

A queuing analysis at the I-15 NB/SB off-ramps to Lenwood Road and at I-15 NB/SB off-ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour for the cumulative year 2035 was conducted and is summarized in **Appendix Q** of the Final EIS/TEIR.

I-15 Off-Ramps/Lenwood Road

Based on the project trip distribution, project trips are only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables, there is sufficient capacity to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound off-ramps with or without Alternative A during the cumulative year 2035 at the movements in which the project adds trips, except during the following conditions:

- I-15 at Lenwood Road northbound right during the Saturday mid-day (95th Percentile) peak hour for the year 2035 without project traffic.
- I-15 at Lenwood Road northbound right during the Saturday mid-day (50th and 90th Percentile) peak hour for the year 2035 with Alternative A traffic.
- I-15 at Lenwood Road northbound right during the Sunday PM peak hour (50th and 95th Percentile) for the year 2035 with Alternative A traffic.

It should be noted that there are no federal, State, or local significance thresholds for queuing analysis. However, given that Alternative A would contribute to a traffic condition that could translate to level of service effects on the I-15 freeway, mitigation measures are provided in **Section 5.7** of the Final EIS/TEIR to minimize potential effects. Mitigation measures would redistribute an additional 30 percent of project traffic from I-15 at Lenwood Road off-ramps to the Outlet Center Drive off-ramps. With implementation these mitigation measures, the cumulative year 2035 Saturday mid-day 95th percentile and Sunday mid-day 95th percentile are still exceeded. However, there are ample capacity and queue storage lengths to accommodate the 50 percentile queues during the Saturday and Sunday mid-day peak hours.~~,~~ With mitigation, cumulative queuing effects as a result of Alternative A in the year 2035 at I-15 NB off-ramp at Lenwood Road would be considered less than significant.

I-15 Off-Ramps/Outlet Center Drive

Mitigation recommended within Section 5.7 of the Final EIS/TEIR to alleviate potential queuing effects at the I-15/Lenwood Road Interchange would result in the redirection of additional traffic to the I-15/Outlet Center Drive interchange. An analysis of the Outlet Center Drive interchange was conducted to

ensure that the interchange could accommodate the additional traffic which would use the interchange once mitigation was implemented.

The I-15/Outlet Center Road interchange is currently un-signalized. With the addition of project related traffic, the I-15/Outlet Center Drive intersection would operate at an LOS E/F, which is considered an adverse cumulative effect. Mitigation measures within Section 5.7 require that both ramps be signalized. Table B-2 provided in **Appendix Q** of the Final EIS/TEIR shows that the interchange would operate at LOS C or better under cumulative plus Alternative A mitigated traffic conditions, which is less than the County's LOS D threshold. Additionally, with the implementation of mitigation to signalization of the interchange, sufficient capacity is available to serve the cumulative year 2035 traffic queues with Alternative A traffic. Therefore, after mitigation, cumulative effects to traffic operations at the Outlet Center Drive Interchange are considered less than significant.

Land Use

Development in the City is guided by the General Plan, applicable Specific Plans, the City Zoning Ordinance, and Redevelopment Plans. Planned development projects within the City are consistent with these documents and policies, which prevent disorderly growth or incompatible land uses. While Alternative A would not be subject to local land use policies, as discussed in **Section 4.8**, the Tribe has agreed to develop tribal projects on the trust land in a manner that is consistent with the Barstow Municipal Code, pursuant to its Municipal Services Agreement (MSA) with the City of Barstow. Alternative A would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. Alternative A would not result in adverse cumulative effects to land use planning.

Agriculture

Agricultural production and viable land for agriculture are both limited in the area. The Barstow site is located in an area designated for commercial development and no agricultural activities exist in the project area. Alternative A would not result in adverse cumulative effects to agricultural lands.

Public Services

Water Supply

Water demands have been projected by Golden State Water Company (GSWC) through 2030. The estimated water demand for the Barstow system is 11,927 acre-feet/year (ac-ft/yr) in 2010, 15,388 ac-ft/yr in 2020, and 18,833 ac-ft/yr in 2030 (GSWC, 2005). GSWC intends to pursue multiple strategies to ensure long-term ability beyond 2025 to serve all future water demands within the Barstow system (GSWC, 2005). The GSWC wells in the Barstow Customer Service Area have a surplus capacity of approximately 6,591 ac-ft/yr (GSWC, 2005). The Barstow Customer Service Area has adequate capacity for the estimated water demands of the Alternative A (225 ac-ft/yr) and future development.

As discussed in the General Plan, improvements made to the water system, and the construction of facilities added to the system are financed through water rates charged to customers, and contributions

paid by developers. The Redevelopment Agency also has various funding mechanisms to upgrade the existing water systems in redevelopment areas (City of Barstow, 1997). Alternative A would not result in adverse cumulative effects to municipal water suppliers.

Wastewater Service

Currently the wastewater plant serving the City has a treatment capacity of 4.5 million gallons per day (mgd) and a daily flow of approximately 2.7 mgd with a peak flow of 3.2 mgd. There is adequate surplus capacity to accommodate the peak (0.35 mgd) wastewater flows from Alternative A and future development. Should upgrades to the WWTP be required in the future due to more stringent waste discharge requirements that may be issued by the Regional Water Quality Control Board, payments made to the City through the MSA would provide for the Tribe's fair share contribution to the improvements. The City requires that all new development provide evidence of ability to be served by the Barstow wastewater treatment facilities prior to occupancy (City of Barstow, 1997). Upgrades to and expansion of infrastructure would be funded through development fees. Alternative A would not result in adverse cumulative effects to municipal wastewater providers.

Solid Waste

The County Solid Waste Management Division is responsible for operation and management of solid waste disposal in the County. As described in **Section 3.9.3**, the landfill currently serving the Barstow is expected to be expanded and the estimated permitted daily limit is 1,500 tons per day (Barbour, 2009). Projected solid waste generation for Alternative A is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfill. The anticipated closure date of the expanded landfill based on anticipated growth is 2070. Alternative A would not result in adverse cumulative effects to solid waste services in the geographic area of the cumulative effects zone.

Energy

Individual projects would be responsible for paying development or user fees to receive electrical or natural gas services. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative A. Therefore, Alternative A would not contribute to a potential for adverse cumulative effects to energy providers.

Law Enforcement Services

New development would fund City services including law enforcement through development fees and property tax. As required by the MSA, the Tribe would make payments to the City to cover the costs of increased demand for law enforcement services that may result from Alternative A. The Tribe has also agreed in Section 4 of the MSA, upon request of the City, to dedicate land for fire and police station use and pay for a portion of new fire and police stations. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative A would not contribute to a potential for adverse cumulative effects to law enforcement services.

Fire Protection and Emergency Medical Services

New development would be required to fund City services including fire protection and emergency medical through development fees and property tax. Emergency medical costs are paid primarily by the individual requiring service. In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for the purchase of a fully equipped Emergency Medical Services Response Vehicle. Under the MSA, the Tribe has committed to pay one half of the actual costs of training fire personnel if the hotel/casino structure exceeds four stories. In Section 4(C) of the MSA, the Tribe has also agreed to dedicate or arrange for the dedication of two-acres of land near the project site for fire or police station use.

With implementation of the conditions of the MSA, as discussed in **Section 5.9**, Alternative A would not contribute to a potential for adverse effects on fire protection and emergency medical services.

Noise

Approved projects would be required to comply with the provisions of Section III.4, Noise, of the General Plan, which includes requirements for mitigation noise when levels exceed compatible use standards as outlined in Section III.4 of the General Plan. With the implementation of mitigation measures outlined in **Section 5.10**, Alternative A would not result in adverse cumulative effects to the ambient noise environment.

Hazardous Materials

As discussed in **Section 4.11**, with the incorporation of the BMPs outlined in **Section 5.11** implementation of Alternative A would result in minimal impacts regarding hazardous materials management. Approved projects would be required to follow applicable federal and state regulations concerning hazardous materials management, including the implementation of construction BMPs dealing with hazardous materials management through the NPDES permitting process. Approved projects would also be required to comply with the provisions of Section III.4, Emergency Management, of the General Plan, which includes requirements for businesses that use, store, or generate hazardous materials to file a business plan with the County Hazardous Materials Management Division. With the implementation of mitigation measures outlined in **Section 5.11**, Alternative A would not result in cumulative adverse impacts to hazardous materials management.

Aesthetics

Cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines. Development of Alternative A would, for the most part, be consistent with the visual goals of local land use regulations. The project site is not located in a scenic corridor or an area of high aesthetic value. Substantial development is present to the north and west of the Barstow site. With the implementation of mitigation measures outlined in **Section 5.12**, Alternative A would not result in adverse cumulative impacts to aesthetic resources.

4.13.3 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

List of Potentially Cumulative Actions and Projects

Alternative B would be constructed on the same parcel of land as Alternative A; therefore, the list of potentially cumulative actions and projects would be the same for Alternative B as that of Alternative A.

Land Resources

The principal effects to land resources associated with cumulative developments would be localized topographical changes and soil attrition. Topographic changes may be cumulatively significant if the topography contributes significantly to the environmental quality with respect to drainage, habitat, or other values. Soil loss could be cumulatively considerable if the project alone would not result in significant loss of topsoil, but taken together with all other developments may result in significant depletion of available soils. Alternative B would require minimal grading of existing topographic features, and soil disturbance would be significantly less than under Alternative A since there would be no subsurface parking under Alternative B. Local permitting requirements for construction would address regional geotechnical and topographical conflicts, and seismic hazards. It is anticipated that approved developments will follow the appropriate permitting procedures. As discussed in **Section 5.0**, the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code in effect at the time of any project development. In addition, the project must comply with the requirements of the Construction Stormwater General Permit, which requires BMPs be chosen and implemented to address water quality degradation by preventing erosion, as outlined in **Section 5.2**. Therefore, implementation of Alternative B would not contribute to cumulative effects to land resources.

Water Resources

Surface Water and Flooding

Cumulative effects to surface water may take place as a result of increased stormwater flows from additional impervious surfaces constructed within the area. Approved projects would be required to follow the General Plan policies and municipal code provisions, evaluate the impacts of all new development and expansion projects on storm runoff, and pay the costs of any necessary upgrades to existing drainage facilities. As discussed in **Subsection 2.2.1**, drainage facilities have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash and minimizing impacts to site drainage from changes in topography. Therefore, development of Alternative B would not result in cumulative effects to the drainage shed when considered with other development in the area.

Additional development in combination with Alternative B could result in cumulative adverse effects to floodplain management if structures were to impede floodways or raise flood elevations. Approved projects would be required to follow the municipal code, Title 15 of which requires development permits within special flood hazard areas (see **Section 3.2**) and special construction provisions that would require that encroachments within special flood areas would not result in any increase in flood levels or impede

floodplain management. Additionally, approved projects would be required to pay flood control channel development fees. Development of Alternative B would not result in cumulative effects to floodplain management.

Groundwater

Increased development could result in cumulative adverse effects if the total water demand of approved projects exceeds pumping capacity of groundwater wells or the total annual recharge of the basin. Local projects would abide by Section II.1, Water Resources, of the City's General Plan, which requires new development and expansion projects outside of existing service areas to purchase additional water supplies to offset the potential burden to the existing system. Under Alternative B, potable water would be supplied by the available capacity of the Golden State Water Company and would not require the use of on-site groundwater resources.

Water Quality

Construction activities could result in erosion and sediment discharge to surface waters, potentially effecting water quality in downstream water bodies. In addition, construction equipment and materials have the potential to leak, thereby discharging oils, greases, and construction supplies into stormwater, potentially affecting both surface water and groundwater. Concurrent construction of Alternative B and other relevant cumulative projects identified above could result in temporary cumulative effects to water quality. To mitigate potential adverse effects, approved developments including Alternative B would be required to implement erosion control measures and construction BMPs in a site-specific SWPPP in compliance with the Construction Stormwater General Permit. With the implementation of measures identified in **Section 5.2**, Alternative B would have minimal adverse cumulative effects on water quality.

Air Quality

Air Pollutant Trends

Air pollution trends for Alternative B would be the same as Alternative A due to the location of the two alternatives.

Operational (2030) Conditions

Operation of Alternative B during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-13** shows operation and area emissions of Alternative B in year 2030, criteria pollutant emissions are ~~shown as a percentage of County total emissions (refer to **Table 4.13-2**)~~compared with *de minimus* levels.

General Conformity Review

Past, present and future development projects, contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS,

then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone and PM_{10}. Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

TABLE 4.13-13
ALTERNATIVE B LONG-TERM (2030) CONDITIONS

Source	ROG	NOx	PM_{10}
	tons per year		
Area	0.34	0.37	0.00
Mobile	10.31	10.44	44.44
Total Emissions	**10.65**	**10.81**	**44.44**
De Minimus Levels	*25*	*25*	*100*
Exceedance	No	No	No
Percentage of Countywide Emissions	***0.030***	***0.019***	***0.050***
Source: URBEMIS 2007.			

Since no emission projections are available for San Bernardino County in 2030, 2020 emissions were used for comparison. **Table 4.13-13** shows that emissions associated with Alternative B ~~would not exceed 10~~are a relatively low percentage of San Bernardino County's emission inventory for ROG, NOx, and PM_{10} and project emission do not exceed *de minimus* levels. When considered as a portion of the County's overall emissions, Alternative B would result in a minimal effect to regional air quality. Furthermore, regional projects would be required to comply with the provisions of the Mohave Desert Air Quality Management District (MDAQMD) and implement dust controls in response to the provisions of Section II.4 of the General Plan. With the implementation of mitigation measures identified in **Section 5.3**, Alternative B would not result in ~~minimal~~ adverse cumulative effects to air quality.

Climate Change

Methodology

Methodology for analyzing project related GHG emissions for Alternative B is the same as Alternative A. Refer to **Section 4.13.2**.

Strategies and Emission Estimates

~~EPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. GHG emitted during construction of Alternative B would be 1,706 tons per year (tpy) of CO_2. **Table 4.13-14** shows the estimated operational emissions.~~

~~Once construction is completed, the project would emit approximately 36,209 tpy of CO_2 from mobile and area sources. CH_4 and N_2O emissions from mobile sources were estimated using emission factors from the Climate Change Action Registry and converted to CO_2e. CH_4 and N_2O emissions from mobile~~

~~sources are estimated to be approximately 1,300 tpy CO_2e. Indirect emissions were estimated using Climate Change Action Registry emission factors and are estimated at 14 tpy CO_2e. Total annual emissions during operation of the project are estimated at approximately 37,523 tpy of CO_2e.~~

TABLE 4.13-14
PROJECT-RELATED GHG EMISSIONS

Alternative B	**GHGs**	**CO_2e Emissions (ST)**	**Conversion Factor (ST/MT)**	**GHG Emissions in CO_2e (MT)**
Direct				
Construction	CO_2	1,657	0.91	1,508
Area	CO_2	429	0.91	391
Subtotal Direct GHG Emissions				*1,899*
Indirect				
Mobile	CO_2	26,409	0.91	24,032
Mobile	CH_4/N_2O	196	0.91	178
Electricity Usage	CO_2			1,422
Water and Wastewater	CO2e			17
Solid Waste	CO2e			1,214
Subtotal Indirect GHG Emissions				*26,863*
Total Project-Related GHG Emissions				**28,762**
GHG Reductions from Mitigation				
Reduce Construction Equipment Idling (MM 5.3-30)				30
Install Low Flow Facilities (MM 5.3-32)				1
Reduce Waste Stream by 50% (MM 5.3-31)				607
Install Energy Efficient Lighting (MM 5.3-35)				426
Install Solar Water Heaters (MM 5.3-39)				284
Federal and State Mobile Emission Reduction Strategies				721
Purchase GHG Emissions Credits (MM 5.3-41)				1,693
Subtotal GHG Reductions				*3,762*
Total Mitigated Project-Related GHG Emissions				**25,000**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

Estimated GHG emissions resulting from Alternative B are shown in **Table 4.13-14.** The total annual project-related GHG emissions are estimated to be 28,762 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0035~~50~~ percent of California's predicted contribution to global GHG emissions in 2020.

Project contributions to the annual global GHG emissions in 2020 would be approximately 0.00000263~~32~~ percent. While Alternative B's contributions to statewide and global emissions are miniscule, primarily because the Alternative B would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. ~~This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.~~

~~**TABLE 4.13-14**~~
~~ESTIMATED ALTERNATIVE B OPERATIONAL GHG EMISSIONS~~

~~**CO_2 Emissions[1]**~~					
~~**Mobile Sources[1]**~~		~~**Area Sources[1]**~~			~~**Total CO_2e**~~
~~**Tons per year**~~		~~**Tons per year**~~			~~**Tons per year**~~
~~35,780~~		~~429~~			~~36,209~~
~~**CH_4 and N_2O Emission from Mobile Sources[2]**~~					
~~**Emission Factor (CH_4/N_2O)**~~	~~**Miles Traveled**~~	~~**CH_4**~~		~~**N_2O**~~	~~**Total CO_2e**~~
~~**g/mile**~~	~~**miles/day**~~	~~**tons per year**~~			
~~0.05/0.05~~	~~191,068~~	~~122~~		~~1,178~~	~~1,300~~
~~**Indirect GHG emissions[2]**~~					
~~**Emission Factor (Kg of CO_2/CH_4/N_2O)**~~	~~**Estimated kW-hr Usage[3]**~~	~~**CO_2**~~	~~**CH_4**~~	~~**N_2O**~~	~~**Indirect CO_2e**~~
~~**lb/MW-hr**~~	~~**MW-hr/Year**~~	~~**Tons per year**~~			
~~804.54/0.006/0.0037~~	~~65~~	~~14~~	~~0.00~~	~~0.00~~	~~14~~
~~**Total Operation CO_2e tons per year**~~					~~**37,523**~~

~~Note: CO_2= Carbon dioxide; GHG= Green House Gases; CO_2e= Carbon dioxide equivalent; CH_4= Methane; N_2O= Nitrous oxide; lb= pound; MW-h= megawatt-hour~~
~~[1] Estimated from USEPA and CARB approved URBEMIS air quality program (**Appendix L**)~~
~~[2] Emission factors from Climate Change Action Registry~~
~~[3] Estimated using 4,500 kilowatts-hours (kW-hr)/month of power used.~~
~~Source: URBEMIS, 2007; California Climate Action Registry, 2009.~~

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative B, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative B (refer to **Table 4.13-15**). The other policies do not apply to Alternative B because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-15**, Alternative B would not be in compliance with all three applicable state climate change strategies. Further, direct and indirect CO_2e emissions would be above the CEQ's 25,000 MT per year of CO_2e reporting standard. T~~; t~~herefore, this

is a potentially significant cumulative ~~impact~~ effect and mitigation is recommended in **Section 5.3**, which would reduce the potential for adverse cumulative effects associated with climate change ~~result in a minimal adverse impact~~.

TABLE 4.13-15
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative B would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Solid waste services are expected to be provided by the City of Barstow or County of San Bernardino, which are subject to the state's recycling requirements. The development would not affect City or County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative B would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill~~, CARB= California Air Resource Board~~. Source: Climate Action Team, 2006	

Biological Resources

Wildlife and Habitats

Implementation of Alternative B in conjunction with additional local projects could result in cumulative adverse effects to biological resources if habitats for special-status species were destroyed. However, potential adverse effects from individual projects would be avoided through compliance with applicable federal and state regulations. Additionally, approved projects would follow the provisions of Section II.5, Biological Resources, of the General Plan, which requires site-specific studies prior to development activities to determine precise mitigation necessary to preserve and enhance biological resources. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative B would not result in adverse cumulative effects to biological resources.

Mojave Desert Tortoise

There are a number of large scale renewable energy projects proposed in the Mohave Desert that have the potential to result in adverse cumulative effects to the Mojave Desert tortoise or other sensitive habitat for

special status species. These projects, if approved, would result in the conversion of thousands of acres of potential habitat. The 16.51 acres of Mohave Creosote Brush Scrub habitat that would be converted under Alternative B would be a miniscule contribution to this overall cumulative effect. Furthermore, the Barstow site is located within the city limits adjacent to existing commercial development and is subject to disturbances from adjacent land uses, including the off-road vehicle recreation area, and thus does not contain high quality habitat for this species. Mitigation has been recommended within Section 5.4 to minimize potential effects to Mohave Desert Tortoise. Therefore, given the relatively low area of land that would be impacted as a result of Alternative B, this is considered a less than significant cumulative effect.

Waters of the U.S.

As discussed in **Section 4.4**, implementation of Alternative B would not result in adverse effects to waters of the U.S. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative B would not contribute to adverse cumulative effects to waters of the U.S.

Cultural Resources

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. No significant cultural resources were identified within or adjacent to the Barstow site. However, the records search and archival research indicate that the study area is in a region moderately sensitive for both prehistoric/pre-contact resources and historic-period resources. Based on this sensitivity, Alternative B may affect previously unknown buried archaeological resources. As discussed in **Section 4.5**, direct effects to unknown cultural resources associated with Alternative B would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.5**. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. With the implementation of the mitigation measures outlined in **Section 5.5**, Alternative B would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Cumulative socioeconomic effects could occur in the project area as the result of developments that affect the lifestyle and economic well being of residents. When considered with other growth in San Bernardino County through 2030, there may be cumulative socioeconomic effects including impacts to the local labor market, housing availability, schools, increased costs due to problem gambling, and impacts to local government. These effects would occur as the region's economic and demographic characteristics change, as the population grows, and specific industries expand or contract. Alternative B would introduce new economic activity in the Barstow area, although to a lesser extent than Alternative A, which would be a beneficial effect to the region. Additionally, Alternative B would implement mitigation measures outlined in **Section 5.6** which would reduce the potential for adverse socioeconomic effects that could result from the project. Further, planning documents for the County will continue to designate land uses for businesses, industry, and housing, as well as plan public services which would anticipate and

accommodate growth in the region. Therefore, within mitigation, Alternative B would not contribute to adverseno significant cumulative socioeconomic effects would result.

Transportation/Circulation

Alternative B would have similar adverse effects to transportation/circulation as Alternative A, although to a lesser extent as fewer trips would be generated. With the implementation of the mitigation measure outlined in **Section 5.7**, Alternative B would not result in significant adverse cumulative effects to transportation/circulation resources.

Cumulative Background Conditions

Cumulative background conditions for Alternative B are the same as Alternative A. Refer to **Section 4.13.2.**

Cumulative Background Plus Alternative B Traffic Conditions

Cumulative Intersection Operations

Table 4.13-16 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under cumulative background plus Alternative B traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background plus Alternative B traffic conditions, except for the following intersection:

- Lenwood Road at Project Access (Weekday and Saturday, Mid-Day and PM peak hours)

TABLE 4.13-16
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE B INTERSECTION CONDITIONS

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	14.6	B	14.4	B	15.7	B	15.1	B
2. Lenwood Rd./Main St.	TS	30.7	C	38.8	D	37.4	D	37.2	D
3. Main St./SR-58 EB Ramps	TS	4.1	A	4.5	A	4.2	A	4.2	A
4. Main St./SR-58 WB Ramps	TS	11.6	B	17.6	B	14.5	B	15.2	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.5	B	14.2	B	21.0	C	13.4	B
6. Lenwood Rd./I-15 NB Ramps	TS	23.9	C	23.5	C	36.4	D	21.7	C
7. Outlet Center Dr./I-15 SB Ramps	OWSC	11.2	B	14.5	B	25.3	D	20.1	C
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.9	B	9.3	A	11.5	B	10.3	B
9. Lenwood Rd./Mercantile Way	TS	37.6	D	38.1	D	39.6	D	38.1	D
10. Lenwood Rd./Project Access.	OWSC	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.6	A	9.0	A	8.9	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Bold denotes poor LOS.
Source: LL&G, 2010.

A mitigation measure is provided in **Section 5.7**, which would reduce project impact to a minimal adverse effect. Weekday and Saturday cumulative peak hour turning volumes are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

Cumulative Roadway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative A traffic conditions have been calculated for the study area roadway segments and are shown in **Table 4.13-17**. As shown in the table, all of the study roadway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative B traffic conditions.

TABLE 4.13-17
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE B ROADWAY SEGMENT CONDITIONS

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.70	B
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.53	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.40	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.36	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
SOURCE: LL&G, 2010.

Cumulative Freeway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative B traffic conditions have been calculated for the study area freeway segments and are shown in **Table 4.13-18**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative B traffic conditions.

TABLE 4.13-18
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE B FREEWAY SEGMENT CONDITIONS

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to Lenwood Road	3	6,900	0.~~871~~684	0.~~647~~519	~~D~~C	B~~C~~
	4	9,200	0.424	0.326	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.810	0.607	D	B
I-15 Southbound						
L Street to Lenwood Road	3	6,900	0.~~992~~769	0.~~876~~651	~~E~~C	C~~D~~
	3	6,900	0.638	0.544	C	B
Outlet Center Drive to Hodge Road	3	6,900	0.913	0.810	D	D

Notes: V/C = volume to capacity ratio.
Bold denotes poor LOS.
Source: LL&G, 2010.

Ramp Diverge Operations

Tables 2, 4, and 15 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis in the cumulative year 2035 at I-15 NB/SB off-ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, the diverge operations at the northbound and southbound off-ramps are calculated to operate at acceptable levels of service under cumulative year conditions both with and without Alternative B traffic during the weekday peak hours, Saturday peak hours, and Sunday AM peak hour. However, as shown in the Table 15 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would exceed the County's significance threshold of LOS D at the I-15 southbound off-ramp in the cumulative year 2035 both with and without Alternative B traffic. Mitigation measures provided in Section 5.7 would minimize Alternative B's contribution to this on-going cumulative adverse traffic condition. Therefore, with mitigation this cumulative effect is considered less than significant.

Intersection Queuing Operations

A queuing analysis at the I-15 NB/SB off-ramps to Lenwood Road and at I-15 NB/SB off-ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour for the cumulative year 2035 was conducted and is summarized in **Appendix Q** of the Final EIS/TEIR.

I-15 Off-Ramps/Lenwood Road

Based on the project trip distribution, project trips are only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables, there is sufficient capacity to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound off-ramps with or without Alternative B during the cumulative year 2035 at the movements in which the project adds trips, except during the following conditions:

- I-15 at Lenwood Road northbound right during the Saturday mid-day (95th Percentile) peak hour for the year 2035 without project traffic.
- I-15 at Lenwood Road northbound right during the Saturday mid-day (50th and 90th Percentile) peak hour for the year 2035 with Alternative B traffic.
- I-15 at Lenwood Road northbound right during the Sunday PM peak hour (50th and 95th Percentile) for the year 2035 with Alternative B traffic.

It should be noted that there are no federal, State, or local significance thresholds for queuing analysis. However, given that Alternative B would contribute to a traffic condition that could translate to level of service effects on the I-15 freeway, mitigation measures are provided in **Section 5.7** of the Final EIS/TEIR to minimize potential effects. Mitigation measures would redistribute an additional 30 percent of project traffic from I-15 at Lenwood Road off-ramps to the Outlet Center Drive off-ramps. With implementation these mitigation measures, the cumulative year 2035 Saturday mid-day 95th percentile is still exceeded. However, there are ample capacity and queue storage lengths to accommodate the 50 percentile queues during the Saturday mid-day peak hour. With mitigation, cumulative queuing effects as

a result of Alternative B in the year 2035 at I-15 NB off-ramp at Lenwood Road would be considered less than significant.

I-15 Off-Ramps/Outlet Center Drive

Mitigation recommended within Section 5.7 of the Final EIS/TEIR to alleviate potential queuing effects at the I-15/Lenwood Road Interchange would result in the redirection of additional traffic to the I-15/Outlet Center Drive interchange. An analysis of the Outlet Center Drive interchange was conducted to ensure that the interchange could accommodate the additional traffic which would use the interchange once mitigation was implemented. The I-15/Outlet Center Road interchange is currently un-signalized. With the addition of project related traffic, the I-15/Outlet Center Drive intersection would operate at an LOS E/F, which is considered an adverse cumulative effect. Mitigation measures within Section 5.7 require that both ramps be signalized. Table B-2 provided in **Appendix Q** of the Final EIS/TEIR shows that the interchange would operate at LOS C or better under cumulative plus Alternative A mitigated traffic conditions, which is less than the LOS D threshold. Additionally, with the implementation of mitigation to signalization of the interchange, sufficient capacity is available to serve the cumulative year 2035 traffic queues with Alternative B traffic. Therefore, after mitigation, cumulative effects to traffic operations at the Outlet Center Drive Interchange are considered less than significant.

Land Use and Agriculture

Development in the City is guided by the General Plan, applicable Specific Plans, the City Zoning Ordinance, and Redevelopment Plans. Planned development projects within the City are consistent with these documents and policies, which prevent disorderly growth or incompatible land uses. While Alternative B would not be subject to local land use policies, as discussed in **Section 4.8**, the Tribe has agreed to develop tribal projects on the trust land in a manner that is consistent with the Barstow Municipal Code, pursuant to its MSA with the City of Barstow. Alternative B would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. Alternative B would not result in adverse cumulative effects to land use planning.

Agriculture

Agricultural production and viable land for agriculture are both limited in the area. The Barstow site is located in an area designated for commercial development and no agricultural activities exist in the project area. As with Alternative A, Alternative B would not result in adverse cumulative effects to agricultural lands.

Public Services

As Alternative B would consist of similar components as Alternative A, it would result in similar potential adverse effects to public services although to a lesser extent due to the reduced demand for public services from a smaller casino and hotel. The resources to service Alternative B would be provided through the MSA, similar to Alternative A; therefore development of Alternative B would not result in adverse cumulative effects to public services. Because Alternative B includes a smaller casino

and hotel, the water demands and wastewater generation would be decreased by one third compared to Alternative A, further reducing the possibility of cumulative effects.

Noise

Approved projects would be required to comply with the provisions of Section III.4, Noise, of the General Plan, which includes requirements for mitigation noise when levels exceed compatible use standards as outlined in Section III.4 of the General Plan. The potential for Alternative B to result in significant adverse cumulative effects associated with noise would be similar to Alternative A, although to a lesser extent as less traffic noise would be generated. With the implementation of mitigation measures outlined in **Section 5.10**, Alternative B would not contribute to adverse cumulative effects to the ambient noise environment.

Hazardous Materials

As discussed in **Section 4.11**, with the incorporation of the BMPs outlined in **Section 5.11** implementation of Alternative B would result in minimal impacts regarding hazardous materials management. Approved projects would be required to follow applicable federal and state regulations concerning hazardous materials management, including the implementation of construction BMPs dealing with hazardous materials management through the NPDES permitting process. Approved projects would also be required to comply with the provisions of Section III.4, Emergency Management, of the General Plan, which includes requirements for businesses that use, store, or generate hazardous materials to file a business plan with the County Hazardous Materials Management Division. With the implementation of mitigation measures outlined in **Section 5.11**, Alternative B would not result in cumulative adverse impacts to hazardous materials management.

Aesthetics

Cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines. As with Alternative A, development of Alternative B would, for the most part, be consistent with the visual goals of local land use regulations. The project site is not located in a scenic corridor or an area of high aesthetic value. Substantial development is present to the north and west of the Barstow site. With the implementation of mitigation measures outlined in **Section 5.12**, Alternative B would not result in adverse cumulative impacts to aesthetic resources.

4.13.4 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

List of Potentially Cumulative Actions and Projects

Alternative C would be located on the Los Coyotes ~~Rancheria~~Reservation. This section analyzes the potential~~ly~~ cumulative~~ly considerable adverse~~ effects of Alternative C ~~when compared to~~when added to other reasonably foreseeable growth and projects ~~potential development~~ within and outside of the ~~Rancheria~~Reservation. Within the reservation, cumulative projects include the on-going operations of the Eagle Rock Military Training Facility (MTF). The lease agreement between the Tribe and Eagle Rock Training Center (ERTC) specifies that uses permitted at the Eagle Rock MTF are limited to firearms and

on-and off-road driver training for law enforcement, military personnel, and/or permitted civilians. Beyond the Reservation boundaries, cumulative projects include those approved by local jurisdictions or tribal governments.

Land Resources

The potential cumulatively considerable adverse effects to land resources associated with countywide development would be localized topographical changes and soil attrition. Any ground disturbance greater than one acre on the Reservation would require a NPDES General Permit. Accordingly, a SWPPP would be developed prior to any ground disturbance greater than one acre, which would include, but would not be limited to, implementation of the BMP's listed within **Section 5.2**. Permitting requirements for the construction of projects within the County's jurisdiction would address regional geotechnical, seismic, and mining hazards. It is anticipated that approved developments will follow appropriate permitting procedures; therefore, with the implementation of measures identified in **Section 5.0**, ~~implementation of~~ Alternative C would result in minimal adverse cumulative effects to land resources.

Water Resources

Surface Water and Flooding

Cumulative effects to surface water may take place as a result of increased stormwater flows from additional impervious surfaces constructed within the area. Approved projects ~~in the vicinity of Alternative C~~ on federal lands would be required to follow federal ~~and state~~ standards. Additionally, local projects within the jurisdiction of San Diego County would comply with the Conservation Element of the County of San Diego's General Plan (General Plan), which includes policies to ensure storm water runoff is planned and managed to minimize water degradation and reduce the effect of erosion. Alternative C would therefore result in minimal cumulatively considerable adverse effects on surface water features. The project site for Alternative C is not located within designated 100- or 500-year flood plain. Implementation of Alternative C would not result in adverse cumulative effects to floodplain management.

Groundwater

Groundwater effects of individual developments could result in cumulatively considerable adverse effects if the total water demand of approved projects, including Alternative C exceeds pumping capacity of the groundwater table. However, as stated above, approved projects within the jurisdiction of San Diego County would be required to comply with the Conservation Element of the General Plan, which include requirements to assure growth is limited to areas where adequate public facilities exist or can be efficiently provided. Projects on federal lands would be required to follow federal standards. Therefore, implementation of Alternative C would result in minimal adverse cumulative effects on groundwater resources.

Water Quality

~~To mitigate p~~Potential adverse effects to water quality, approved developments would be required to implement erosion control measures and construction BMPs via a site-specific SWPPP in compliance

with the State of California General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). Additionally, ~~local~~ projects within the County's jurisdiction would comply with water quality provisions outlined within the Conservation Element of the General Plan. With the implementation of measures identified in **Section 5.2**, Alternative C would have minimal adverse cumulative effects on water quality.

Air Quality

Air Pollutant Trends

Cumulative air quality effects are assessed by comparing the incremental emissions associated with Alternative C to San Diego County-wide emissions forecasted by the California Air Resources Board (CARB) for long-term cumulative conditions (2020, the farthest planning horizon for county-wide emission forecasts). The County's emissions trends from 1975 to 2020 are presented in **Table 4.13-19**. Ozone precursor (ROG and NO_X) had a small jump between 1975 and 1990, but since 1990 emissions decreased consistently, and are projected to drop off in the future. The two pollutants discussed above are governed by state implementation plans (SIP) and therefore should decrease in the future.

Table 4.13-19
San ~~d~~Diego County Emissions Trends

Pollutants	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
	tons per day									
ROG	845	879	902	798	680	576	530	538	557	581
NO_x	293	285	299	331	283	246	206	177	156	160
SOURCE: CARB, 2009d.										

Operational (2030) Conditions

Operation of Alternative C during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-~~15~~20** shows operation and area emissions of Alternative C in year 2030, criteria pollutant emissions are ~~shown as a percentage of County total emissions~~compared to *de minimus* levels.

General Conformity Review

Past, present and future development projects contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone. Because project

emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

Since no emission projections are available for San Diego County in 2030, 2020 emissions were used for comparison. **Table 4.13-20** shows that emissions associated with Alternative C ~~would not exceed 10 percent~~ are a relatively low percentage of San Diego County's emission inventory for ROG and NOx and project emissions do not exceed de minimus levels. When considered as a portion of the County's overall emissions, Alternative C makes a minimal contribution to regional air quality. With the implementation of mitigation measures identified in **Section 5.3**, Alternative C would not result in ~~minimal~~ adverse cumulative effects to air quality.

TABLE 4.13-20
ALTERNATIVE C (2030) EMISSIONS

Sources	Criteria Pollutants	
	ROG	NOx
	tons per day	
Area	0.05	0.03
Mobile	3.76	4.49
Total Emissions	**3.81**	**4.52**
De Minimus Levels	100	100
Exceedance	No	No
~~***Percentage of Countywide Emissions***~~	~~***0.0018***~~	~~***0.0077***~~
Source: URBEMIS, 2007; CARB, 2009d		

Climate Change

Methodology

Methodology and significance thresholds for analyzing project related GHG emissions for Alternative C is the same as Alternative A.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative C are shown in **Table 4.13-21.** The total annual project-related GHG emissions are estimated to be 12,316 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0009 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000009 percent. While Alternative C's contributions to statewide and global emissions are miniscule, primarily because the Alternative C would not emit or result in the emission of high-global warming potential

emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

TABLE 4.13-21
PROJECT-RELATED GHG EMISSIONS

Alternative C	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct				
Construction	CO_2	268	0.91	244
Area	CO_2	37	0.91	34
Subtotal Direct GHG Emissions				*278*
Indirect				
Mobile	CO_2	12,792	0.91	11,641
Mobile	CH_4/N_2O	141	0.91	128
Electricity Usage	CO_2			144
Water and Wastewater	CO2e			2
Solid Waste	CO2e			123
Subtotal Indirect GHG Emissions				*12,038*
Total Project-Related GHG Emissions				**12,316**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative C, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative C (refer to **Table 4.13-22**). The other policies do not apply to Alternative C because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-22**, Alternative C would not be in compliance with all three applicable state climate change strategies. Although, direct and indirect CO_2e emissions would be below the CEQ's 25,000 MT per year of CO_2e reporting standard, this is a potentially significant cumulative effect and mitigation is recommended in **Section 5.3**, which would reduce the potential for adverse cumulative effects associated with climate change.

~~As with Alternative A, the greatest emitters of GHG for Alternative C would be automobiles, although to a lesser extent than Alternative A. With the scheduled emissions reductions by the State of California, including reduced automobile emissions and mitigation measures provided in **Section 5.3**; implementation of Alternative C would result in minimal adverse cumulative effects to climate change.~~

TABLE 4.13-22
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative C would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	The development would not affect County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative C would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill. Source: Climate Action Team, 2006	

Biological Resources

Wildlife and Habitats

Implementation of Alternative C in conjunction with additional local projects could result in cumulatively considerable adverse effects to biological resources if habitats for special-status species were destroyed. Potential adverse effects from individual projects would be avoided through compliance with applicable federal and state regulations. Additionally, approved projects within the jurisdiction of San Diego County would follow the provisions of the San Diego County General Plan (General Plan), which require measures to reduce impacts to habitats for special-status species to the extent possible. With the implementation of the mitigation measures outlined in **Section 5.4,** Alternative C would result in minimal adverse cumulative effects to biological resources.

Waters of the U.S.

As discussed in **Section 4.4**, implementation of Alternative C would not result in adverse effects to waters of the U.S. Approved projects would be required to apply for permits from the USACE prior to disturbing waters of the U.S. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative C would result in minimal adverse cumulative effects to waters of the U.S.

Cultural Resources

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. No significant cultural resources were identified within or adjacent to the Los Coyotes site. However, the records search and archival research indicate that the study area is in a region moderately sensitive for both prehistoric/pre-contact resources and historic-period resources. Based on this sensitivity, Alternative C may affect previously unknown buried archaeological resources. As discussed in **Section 4.5**, direct effects to unknown cultural resources associated with Alternative C would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.5**. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. Alternative C would therefore result in minimal adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Alternative C would introduce a new source of economic activity in the San Diego area. The creation of jobs and revenues that would result from the project is considered to be a beneficial effect. When considered with other growth in San Diego County through 2030 there may be cumulative socioeconomic effects including impacts to the local labor market, housing availability, schools, increased costs due to problem gambling, and impacts to local government. However, these effects would occur as the region's economic and demographic characteristics change, as the population grows, and specific industries expand or contract. Planning documents for the County will continue to designate land uses within the jurisdiction of San Diego County for businesses, industry, and housing, as well as plan public services which would anticipate growth in the region. Impacts to local governments from activities on federal lands would be regulated by federal standards. Therefore, no significant cumulative socioeconomic effects would result. An analysis of growth-inducing effects is provided in **Section 4.14.2**.

Transportation/Circulation

Methodologies

To assess the cumulative transportation effects of the project under the cumulative year traffic conditions, project traffic is combined with existing traffic and area-wide growth. Horizon year 2030 traffic volumes for the Los Coyotes site study area have been calculated based on a conservative two percent annual growth rate of existing traffic volumes over a 24-year period. This growth rate for the Los Coyotes site study area was obtained from the *Traffic Volumes on California State Highways* published by Caltrans. While the TIA included in Appendix H of the Draft EIS/TEIR did not specifically consider traffic generated by the Eagle Rock MTF, the operation of the Eagle Rock MTF would generate trips during the early mornings (5:00 to 7:00 AM) and evenings (5:30 to 7:00 PM). Due to the nature of the operations at the Eagle Rock MTF, significant trips will not be added to the peak hours associated with the operations of Alternative C, mid-day (12:00 to 2:00 PM) and evenings (4:00 to 6:00 PM) and, therefore, do not significantly contribute towards the cumulative effects discussed below.

Cumulative Traffic Conditions

Intersection Operations

Table 4.13-2~~1~~3 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the Los Coyotes site study intersections under 2030 traffic conditions. Weekday and Saturday cumulative peak hour turning volumes at the Los Coyotes site are provided in the TIA in **Appendix H** of the Draft EIS/TEIR. As shown in the table, each of the study intersections would operate at an acceptable LOS of C or better under 2030 traffic conditions without the project, and with the addition of project-related traffic. As shown in the table, each of the study intersections would operate at an acceptable LOS of C or better under 2030 traffic conditions without the project, and with the addition of project-related traffic.

TABLE 4.13-2~~1~~3
CUMULATIVE BACKGROUND PLUS ALTERNATIVE C INTERSECTION CONDITION

Intersection	Traffic Control	No Project - Peak Hour Delay-LOS				Alternative E - Peak Hour Delay-LOS			
		Weekday		Saturday		Weekday		Saturday	
		Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening
1. SR-79/Stage Road	CSS	9.0-A	9.1-A	10.7-B	10.5-B	9.3-A	9.5-A	11.5-B	11.1-B
2. SR-79/Camino San Ignacio Road	CSS	9.4-A	9.1-A	10.5-B	9.4-A	10.2-B	10.3-B	13.5-B	11.4-B
3. SR-79/San Felipe Road	CSS	10.9-B	10.2-B	11.8-B	10.7-B	11.4-B	10.7-B	12.9-B	11.5-B
4. SR-79/SR-76	CSS	10.9-B	10.9-B	16.5-C	13.1-B	11.5-B	11.6-B	19.8-C	14.6-B

Notes: **Bold** indicates unacceptable LOS; CSS = cross street stop.
Source: Kunzman, 2007.

Roadway Segment Operations

Volume to capacity ratios and LOS for the cumulative year have been calculated for the study area roadway segments and are shown in **Table 4.13-2~~2~~4**. This table shows volume to capacity ratios and LOS, both with and without the addition of project-related traffic. As shown in the table, the study roadway
segment is projected to operate at an acceptable LOS under cumulative conditions with implementation of Alternative C.

TABLE 4.13-2~~2~~4
CUMULATIVE BACKGROUND PLUS ALTERNATIVE C ROADWAY SEGMENT CONDITION

Roadway	Segment	No. of Lanes[1]	Maximum Capacity (LOS E)	2030 No Project			2030 with Alternative E		
				ADT[2]	V/C[3]	LOS	ADT	V/C	LOS
Camino San Ignacio Road	South of SR-79	2U	10,900	800	0.07	A	1,800	0.17	A

Notes: **Bold** indicates unacceptable traffic operations; 1. D = divided roadway; U undivided roadway. 2. ADT = average daily trips
3. V/C = volume to capacity ratio.
Source: Kunzman, 2007c.

Traffic Signal Warrant Analysis

Under year 2030 with Alternative C traffic conditions, none of the study intersections would warrant a traffic signal.

Effect Summary

Because the increase in traffic generated by Alternative C would not result in an unacceptable LOS or warrant a traffic signal, Alternative C would result in a minimal adverse cumulative effect to the transportation and circulation networks.

Land Use

The Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians has jurisdictional authority over land use matters within the ~~Rancheria~~Reservation. Use of the Los Coyotes site as a casino/hotel resort would not preclude the use of surrounding lands for recreational purposes. The San Diego County General Plan guides development in the surrounding area. Future development surrounding the ~~Rancheria~~ Reservation would be required to be consistent with the zoning requirements of the General Plan. Furthermore, disorderly growth, or incompatible uses are not anticipated for the area surrounding the Reservation~~ancheria~~. Alternative C would result in minimal adverse cumulative effects to land use management.

Agriculture

The ~~Rancheria~~ Reservation has not been used for agricultural activities and land in the vicinity is mostly desert. Alternative C would result in minimal adverse cumulative effects to agricultural lands.

Public Services

The aspects of overall project design and recommended measures presented in **Section 4.9** will minimize or eliminate all identified adverse effects. Future development would be required to pay for increased demand on public services through development fees and taxes. Alternative C would result in minimal adverse cumulative effects to public services.

Noise

With the implementation of mitigation measures outlined in **Section 5.10** in conjunction with the regulatory requirements for local projects, Alternative C would result in minimal adverse cumulative effects to the ambient noise environment.

Hazardous Materials

As discussed in **Section 4.11**, with the incorporation of the BMPs outlined in **Section 5.11** implementation of Alternative C would result in minimal impacts regarding hazardous materials management. ~~a~~Approved projects would be required to follow applicable federal and state regulations concerning hazardous materials management, including the implementation of construction BMPs dealing

with hazardous materials management through the NPDES permitting process. With the implementation of mitigation measures outlined in **Section 5.11**, Alternative C would result in minimal adverse cumulative impacts to hazardous materials management.

Aesthetics

Any cumulative development occurring within San Diego County's jurisdiction would be consistent with local land use regulations, including associated design guidelines. Development of Alternative C would occur on land under the jurisdiction of the Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians. The Los Coyotes site, which is located in a remote area of the Los Coyotes Reservation, is not visible from any off-reservation location. With the implementation of mitigation measures outlined in **Section 5.12**, Alternative C would result in minimal adverse cumulative effects to aesthetic resources.

4.13.5 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

List of Potentially Cumulative Actions and Projects

Alternative D would be constructed on the same parcel on land as Alternative C; therefore, the ~~list~~ summary of potentially cumulative actions and projects would be the same ~~for~~ as Alternative ~~D~~C.

Land Resources

Potential cumulatively adverse effects to land resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to land resources.

Water Resources

Potential cumulatively adverse effects to water resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to water resources.

Air Quality

Air Pollutant Trends

Air pollution trends for Alternative D would be the same as Alternative C due to the location of the two alternatives.

Operational (2030) Conditions

Operation of Alternative D during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-~~18~~25** shows operation and area emissions of Alternative D in year 2030, criteria

pollutant emissions are compared with de minimus levels ~~shown as a percentage of County total emissions (refer to **Table 3.13-7**)~~.

General Conformity Review

Past, present and future development projects, such as the Eagle Rock MTS contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone. Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

Since no emission projections are available for San Diego County in 2030, 2020 emissions were used for comparison. **Table 4.13-2~~3~~5** shows that emissions associated with Alternative D ~~would not exceed 10 percent~~ are a relatively low percentage of San Diego County's emission inventory for ROG and NOx and project emissions do not exceed de minimus levels. When considered as a portion of the County's overall emission, Alternative D makes a minimal contribution to regional air quality. With the implementation of mitigation measures identified in **Section 5.3**, Alternative D would not result in ~~minimal~~ adverse cumulative effects to air quality.

TABLE 4.13-2~~3~~5
ALTERNATIVE D (2030) EMISSIONS

Sources	Criteria Pollutants	
	ROG	NOx
	tons per day	
Area	0.02	0.00
Mobile	5.93	6.98
Total Emissions	**5.95**	**6.98**
De Minimus Levels	100	100
Exceedance	No	No
Percentage of Countywide Emissions	***0.0028***	***0.012***
Source: URBEMIS, 2007; CARB, 2009d.		

~~*Greenhouse Gas Emissions*~~Climate Change

Methodology

Methodology and significance thresholds for analyzing project related GHG emissions for Alternative D are the same as Alternative A.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative D are shown in **Table 4.13-246.** The total annual project-related GHG emissions are estimated to be 18,516 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0012 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000010 percent. While Alternative D's contributions to statewide and global emissions are miniscule, primarily because the Alternative D would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

TABLE 4.13-246
PROJECT-RELATED GHG EMISSIONS

Alternative D	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct				
Construction	CO_2	215	0.91	196
Area	CO_2	1	0.91	1
Subtotal Direct GHG Emissions				*197*
Indirect				
Mobile	CO_2	19,901	0.91	18,110
Mobile	CH_4/N_2O	219	0.91	199
Electricity Usage	CO_2e			1
Water and Wastewater	CO_2e			4
Solid Waste	CO_2e			5
Subtotal Indirect GHG Emissions				*18,319*
Total Project-Related GHG Emissions				**18,516**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative D, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative D (refer to **Table 4.13-2~~5~~7**). The other policies do not apply to Alternative D because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-2~~5~~7**, Alternative D would not be in compliance with all three applicable state climate change strategies. Although, direct and indirect CO_2e emissions would be below the CEQ's 25,000 MT per year of CO_2e reporting standard, this is a potentially significant cumulative effect and mitigation is recommended in **Section 5.3**, which would reduce the potential for adverse cumulative effects associated with climate change.

TABLE 4.13-2~~5~~7
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative D would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	The development would not affect County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative D would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill. Source: Climate Action Team, 2006	

~~As with Alternative A, the greatest emitters of GHGs for Alternative D would be automobiles, however to a much lesser extent based on the differing land uses. With the scheduled emissions reductions by the State of California, including reduced automobile emissions; implementation of Alternative D would result in minimal adverse cumulative effects to climate change.~~

Biological Resources

Potential cumulatively adverse effects to biological resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to biological resources.

Cultural Resources

Potential cumulatively significant adverse effects to land resources for Alternative D would be similar to those for Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Potential cumulatively significant adverse effects to land resources for Alternative D would be similar to those for Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to socioeconomic conditions.

Transportation/Circulation

Potential cumulatively adverse effects to transportation/circulation resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to transportation/circulation resources.

Land Use

Potential cumulatively adverse effects to land use for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to land use.

Public Services

Potential cumulatively adverse effects to public services for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to public services.

Noise

Potential cumulatively adverse effects to ambient noise environment for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to ambient noise environment.

Hazardous Materials

Potential cumulatively adverse effects to hazardous materials management for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to hazardous materials management.

Aesthetics

Potential cumulatively adverse effects to aesthetics for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to aesthetics.

4.13.6 ALTERNATIVE E – NO ACTION

Under the No Action Alternative no changes in land use on the Barstow site are reasonably foreseeable. None of the adverse or beneficial effects identified for Alternatives A and B are anticipated to occur.

4.14 INDIRECT AND GROWTH INDUCING EFFECTS

The Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) (Section 1508.8) defines indirect effects as impacts caused by an action that are later in time or farther removed in distance, but are a reasonably foreseeable result of the action. Direct impacts - caused by the action and occur at the same time and place at the action - have been discussed in **Sections 4.1** to **4.12**. In the event of ambiguity, or when it was determined the level and clarity of analysis would benefit, indirect effects of issue areas are addressed in **Sections 4.1** to **4.12** of this EIS/TEIR. Cumulative impacts measured in conjunction with other reasonably foreseeable projects, whether past, present, or future, are addressed in **Section 4.13** of the EIS/TEIR. The issues discussed below are those in which potential impacts would clearly occur later in time or are geographically removed from the project alternatives. Potential indirect effects associated with proposed alternatives would be minimized to a less than significant level though project design and recommended measures presented in **Chapter 5.0**.

The potential indirect effects of off-site traffic mitigation and utility/infrastructure improvements integral to the development of Alternative A through Alternative D are discussed independently in **Section 4.14.1** as they are distinctively separated in time and space from the proposed alternatives. Growth inducing effects are also discussed independently in **Section 4.14.2** since they are a distinct subset of indirect effects. Growth-inducing effects are defined as effects that result from economic or population growth, or the construction of additional housing as a result of the implementation of the proposed alternatives.

4.14.1 INDIRECT EFFECTS FROM OFF-SITE INFRASTRUCTURE IMPROVEMENTS

Improvements

Implementation of Alternative A or Alternative B at the Barstow site would require construction of roadway and utility improvements and public service structures off-site. Impacts associated with Alternatives A and B would be mitigated through the construction of additional turn lanes within the surrounding roadway network, installation of signage, signalization of various intersections, and the installation of a traffic signal adjacent to the access point to the Barstow site. Public utilities would need to be upgraded and extended to the project site, with the longest distance being the extension of the 10-inch diameter wastewater and water lines that currently terminate at the intersection of Lenwood Road and Mercantile Way. This extension would require the construction of approximately 800 feet of trench adjacent to Lenwood Road. Upgrades to the utility systems entail the expansion of the line system capacity and corresponding lift station capacities. Additionally, in Section 4(C) of the MSA, the Tribe has agreed to dedicate, or arrange for the dedication of, two-acres of non-federal land near the project site for fire and police station use. Off-site improvements are conceptual at this time. Design and construction plans would be prepared after an alternative has been selected for development and would be developed in accordance with City input.

Implementation of Alternatives C and Alternative D would result in potential extension of existing utility lines. The extension of these lines would occur on the Reservation and would be constructed within

existing roadbeds. All construction activities would comply with the Tribe's and USEPA's environmental policies. Utility line extensions are not anticipated to result in adverse environmental effects.

Environmental Consequences

The following section identifies the potential indirect environmental effects of construction of the offsite improvements for Alternatives A and B. The identified improvements are common to both alternatives and the nature and scope of effects would be similar. Off-site projects would require obtaining approvals and permits from the City and may be subject to the California Environmental Quality Act (CEQA), which requires additional environmental review prior to project approval. Implementation of permitting and CEQA requirements would further reduce the potential for significant adverse effects from off-site construction projects.

Land Resources

The construction of roadway and utility improvements would require grading and the introduction of fill material to extend existing road shoulders and roadbed and install sewer/water lines. Potential impacts include physical impacts to the transportation network from geological hazards and increased potential for soil erosion due to the increase of impervious surfaces and additional earthwork needed to construct the improvements.

Impacts resulting from the construction of additional turn lanes and off-site infrastructure would be minimal, as the projects would not cross any known geological hazards. As discussed in **Section 3.1**, the soils on the project site are not expansive, corrosive, or susceptible to subsidence. The soil types and geological hazards identified at the sites for off-site traffic mitigation and utility improvements are the same as that analyzed for the Barstow site (**Figures 3.1-3** and **3.1-4**). Therefore, the impact associated with the construction of off-site traffic mitigation would be the same as those for Alternatives A and B, although to a lesser extent, as a smaller area of disturbance would be required. The shaking potential for the new turnouts and extended pipelines associated with seismic hazards and the regional location of seismically active faults would be similar to the conditions of the existing roadway and pipeline. Under the jurisdiction of the City of Barstow, the project would require the use of stable fill material, engineered embankments, and erosion control features to reduce the potential for adverse impacts to land resources. Construction of most of the roadway improvements over one acre would be required to comply with the NPDES General Construction Permit Program.

Impacts resulting from the construction of the two-acre public service facility (police and/or fire facility as indicated in the MSA) would depend on the selected site. As discussed above, under the jurisdiction of the City of Barstow, the project would require the use of best management practices to reduce the potential for adverse impacts to land resources. Should construction of the public service facility be over one acre, compliance with the NPDES General Construction Permit Program would be required. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with land resources. Incorporation of the legal requirements and industry standards (i.e., best management practices) would further reduce potential impacts from off-site construction projects to a less than ~~signficant~~significant level.

Water Resources

The development of the off-site improvements could affect water resources due to grading and construction activities and an increase in impervious surfaces. Potential adverse effects include increased surface runoff and increased erosion that could adversely affect surface water quality due to increases in sediment and roadway pollutant discharge.

Construction activities over one acre would be required to comply with the NPDES General Construction Permit Program. To comply with the program, a Stormwater Pollution Prevention Plan (SWPPP) would be developed that would include soil erosion and sediment control practices to reduce the amount of exposed soil, prevent runoff from flowing across disturbed areas, slow runoff from the site, and remove sediment from the runoff.

The effects to runoff volumes resulting from the increase in impervious roadways are expected to be minimal due to the limited extent of the improvements in comparison to the existing roadways. Curb and gutters, inlets, and other drainage facilities would be reconstructed to provide adequate facilities to direct stormwater runoff into the existing system. With incorporation of these drainage features and compliance with the soil erosion and sediment control practices identified in the SWPPP, significant adverse effects to water resources would not occur.

Impacts resulting from the construction of the public service facility would depend on the site chosen for the structures. With the incorporation of site appropriate drainage features and compliance with the soil erosion and sediment control practices identified in the SWPPP, significant adverse effects to water resources would not occur. Development of Alternatives A and B would not result in significant adverse indirect effects associated with water resources. Incorporation of best management practices and compliance with legal requirements would further reduce potential impacts from off-site construction projects to a less than ~~signficant~~significant level.

Air Quality

Construction of the off-site improvements would result in short-term construction-related air pollution emissions. The construction phase would produce two types of air contaminants: exhaust emissions from construction equipment and fugitive dust generated as a result of soil movement. Exhaust emissions from construction activities include those associated with the transport of workers and machinery to the site, as well as those produced onsite as the equipment is used. Construction of improvements would be limited in scope and duration. In addition, off-site construction projects over 0.5 acres would have to comply with the Mojave Desert Air Quality Management District (MDAQMD) air quality control rules, including Rule 403.2, Fugitive Dust Control for the Mojave Desert Planning Area, which includes the City. These include watering the exposed soil to reduce dust, reducing dirt track-out from construction sites, and preventing grading operations during high wind conditions. Implementation of MDAQMD requirements for pollution controls at construction projects would reduce potential emissions from the construction projects. Construction projects under 0.5 acres are not regulated in regards to the implementation of air quality control measures, as they are considered to have minimum potential adverse effects to the regional air quality. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with air quality. Compliance with the Federal Clean Air Act and California Clean Air

Act would further reduce potential air quality impacts from off-site construction projects to a less than significant level.

Biological Resources

Construction of the roadway improvements would result in loss of some existing vegetation and/or modification of drainage channels. Most of the habitat that exists in the areas of proposed roadway improvements is highly disturbed and consists of roadsides and moderately disrupted desert scrub habitats. Due to the degraded condition of the roadside areas, habitat quality is generally low, and it is unlikely that construction of the roadway improvements would result in any adverse effects to sensitive plant or animal species. As such, less than significant impacts are expected from the proposed roadway improvements.

Construction of utility improvements would not result in the loss of habitat or impacts to special-status species because the utility lines either already exist or are located under existing roadways. Due to the limited nature of the improvements along existing roadways and the degraded condition of existing habitat, significant adverse effects from the construction of utility improvements would not occur.

Impacts resulting from the construction of the public service facility would depend on the selected site. Compliance with the Endangered Species Act (ESA) and California Endangered Species Act (CESA) would minimize indirect effects. Implementation of Alternatives A and B would not result in significant adverse indirect effects to biological resources.

Cultural Resources

The construction of off-site improvements has the potential to disturb archaeological resources. Grading roadsides to add traffic lanes or expanding intersections may disturb previously unknown sites. Due to prior grading of the existing roadways and occasional traffic on roadsides it is likely that any resources would lack integrity, thus diminishing their significance. Impacts resulting from the construction of the public service facility would depend on the selected site. Archaeological and historic resources are afforded special legal protections designed to reduce the adverse effects of development. Potential Off-site improvement projects would be subject to the protection of cultural resources afforded by the CEQA Guidelines Section 15064.5 and related provisions of the Public Resources Code. In addition, projects with federal involvement would be subject to Section 106 of the National Historic Preservation Act. Implementation of Alternatives A and B would not result in significant adverse indirect effects to cultural resources.

Transportation and Circulation

Construction of off-site improvements would result in short term inconveniences and minor delays due to constricted traffic movements. The intersection improvements are not expected to result in long-term disruption of access to surrounding land uses. Construction activities would occur off the major roadways and would not impede traffic to businesses. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with socioeconomics.

Land Use

Construction of roadway improvements would occur within existing right-of-ways and would not conflict with surrounding land uses. Surrounding land uses will be taken into consideration when designating a site for the two-acre public service facility. Implementation of Alternatives A and B would not result in significant adverse indirect effects to land use.

Public Services

Construction of the intersection improvements may require the relocation of utilities located within and near the existing roadways. Relocation could result in a temporary disruption in service. Such disruptions are common when upgrading and maintaining utility services and local jurisdictions have standard procedures for minimizing effects. Construction of the public service facility will increase the availability of law enforcement and/or fire and emergency medical services. No effects to solid waste services are expected. Implementation of Alternatives A and B would not result in significant adverse indirect effects to public services.

Noise

Construction activities associated with the off-site improvements would result in short-term increases in local ambient noise. Because construction activities are expected to occur during normal daytime hours and the closest receptors are businesses, significant adverse effects to the ambient noise environment would not occur. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with noise.

Hazardous Materials

The accidental release of hazardous materials used during grading and construction activities could pose a hazard to construction employees and the environment. Additionally equipment used during grading and construction activities could ignite dry grasses and weeds on the project sites. These hazards, which are common to construction activities, would be minimized with adherence to best management practices (BMPs) as outlined by the SWPPP prepared in response to the NPDES general permit for construction, if required. These BMPs include refueling in designated areas, storing hazardous materials in approved containers, and clearing dried vegetation. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with hazardous materials.

Aesthetics

Off-site improvement plans would be developed in accordance with City design standards. Therefore, implementation of Alternative A and Alternative B would not result in significant adverse indirect effects associated with aesthetics.

4.14.2 GROWTH-INDUCING EFFECTS

NEPA requires that an EIS analyze “growth inducing effects” (40 C.F.R. §1502.16 (b), 40 C.F.R. §1508.8 (b)). A growth inducing effect is defined as one that fosters economic or population growth, or the construction of additional housing. Growth inducement could result if a project established substantial

new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises) or if it would remove obstacles to population growth (e.g., expansion of a wastewater treatment plant that could allow more construction in the service area). Direct growth inducement is possible if a project contains a component that by definition would lead to "growth," such as the construction of new housing. None of the project alternatives includes direct growth inducement. This section assesses the potential for indirect growth inducement for each development alternative.

Alternative A – Barstow Casino-Hotel Complex

Development of Alternative A would result in one-time employment opportunities from construction and permanent employment opportunities from operation. These opportunities would result from direct as well as indirect and induced effects. Construction opportunities would be temporary in nature, and would not be anticipated to result in the permanent relocation of employees into San Bernardino County. Operational employment opportunities would potentially include employees that relocate to San Bernardino from outside of the county.

Subsection 4.6.1 determined that the employment impact would result in an annual total of approximately 1,562 employment opportunities, including direct, indirect, and induced opportunities. Of these, the majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. As discussed in **Subsection 4.6.1**, there are anticipated to be approximately 84,212 vacant housing units in San Bernardino County in 2014~~,~~ and approximately 1,852 vacant housing units in Barstow in 2014. Therefore, based on regional housing stock projections, and current trends in San Bernardino County housing market data, there are anticipated to be more than enough vacant homes to support potential impacts to the regional labor market under Alternative A. As such, Alternative A is not expected to stimulate regional housing development. A significant adverse impact to the housing market would not occur.

The potential for commercial growth resulting from the development of Alternative A would result from fiscal output generated throughout San Bernardino County. Under Alternative A, this output would be generated from direct, indirect, and induced economic activity. Construction and operation activities would result in direct output to the industries discussed in **Subsection 4.6.1**. Businesses in these sectors would generate growth in the form of indirect output resulting from expenditures on goods and services at other area businesses. In addition, employees from Alternative A would generate growth from induced output resulting from expenditures on goods and services at other area businesses. Indirect and induced output could create further demand for growth; however, such demand would be diffuse and distributed among a variety of different sectors and businesses in San Bernardino County. As such, a significant adverse impact to regional commercial growth would not be anticipated to occur.

Development in Barstow or other cities within San Bernardino County would be subject to the constraints of their general plans, local ordinances, and other planning documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal impact to San Bernardino County as a result of potential growth inducement would be considered less than significant.

Alternative B – Barstow Reduced Casino-Hotel Complex

Development of Alternative B would generate new employment opportunities that could result in additional housing and commercial demand. **Subsection 4.6.2** determined that the employment impact would result in an annual total of approximately 1,085 employment opportunities, including direct, indirect, and induced opportunities. Similar to Alternative A, the majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. The effect of housing and potential commercial growth would be comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope. Similar to Alternative A, based on regional housing stock projections, and current trends in San Bernardino County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative B. As such, Alternative B is not expected to stimulate regional housing development and a significant adverse impact to the housing market would not occur.

Development in Barstow or other cities within San Bernardino County would be subject to the constraints of that general plans, local ordinances, and other planning documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal impact to San Bernardino County as a result of potential growth inducement would be considered less than significant.

Alternative C – Los Coyotes Reservation Casino

Subsection 4.6.3 determined that the employment impact of Alternative C would result in an annual total of approximately 108 employment opportunities, including direct, indirect, and induced opportunities. Of these, the majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. As discussed in **Subsection 4.6.3**, there are anticipated to be approximately 53,420 vacant housing units in San Diego County in 2014. Therefore, based on regional housing stock projections, and current trends in San Diego County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative C. As such, Alternative C is not expected to stimulate regional housing development. A significant adverse impact to the housing market would not occur. Due to the limited scope of Alternative C, a significant adverse impact to regional commercial growth would not be anticipated to occur.

Alternative D – Los Coyotes Reservation Campground

Development of Alternative D would generate new employment opportunities that could result in additional housing and commercial demand in San Diego County. **Subsection 4.6.4** determined that given the small magnitude of employment opportunities generated from Alternative D, Alternative D would result in a negligible, if any, impact to the housing market, and would be considered less than significant.

Alternative E – No Action

Under the No Action Alternative, a change in the current land use of the Barstow site is not reasonably foreseeable. None of the adverse or beneficial effects identified for the Proposed Project would be anticipated to occur.

CHAPTER 4.0

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4.0 ENVIRONMENTAL CONSEQUENCES

This chapter discusses the environmental effects of the proposed project and alternatives and provides the foundation for comparison of the alternatives presented in **Chapter 2.0**. The potential for adverse environmental effects is assessed with regard to the baseline conditions established in **Chapter 3.0**. The analysis presented in this chapter has been prepared in accordance with Council of Environmental Quality (CEQ) NEPA Regulations (40 CFR §1502.16).

4.1 LAND RESOURCES

This section identifies the direct effects to land resources that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.1**. Cumulative effects are identified in **Section 4.13**. Indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Measures to avoid and, if necessary, mitigate for adverse effects identified in these sections are presented in **Section 5.2**.

Assessment Criteria

Adverse geologic effects would result if structures were to fail or create hazards to adjacent property due to slope instability, effects of earthquakes, or adverse soil conditions (i.e. compressible, expansive or corrosive soils), or if mineral resources were compromised.

4.1.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Topography and Landslides

Construction of Alternative A would require alterations to the topographical characteristics of the Barstow site. The Barstow site is relatively flat (1.5 percent mean slope), and the result of on-site grading would have a minor impact on the site. As discussed in **Subsection 3.1.2**, there is no sloping ground that would be subject to instability or landslides on or adjacent to the Barstow site; therefore, landslides would not occur. Development of Alternative A would have no adverse effects on topographic characteristics.

Soils

Soil Erosion

Construction activities associated with Alternative A could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A discussion of surface water impacts is provided in **Section 4.2**, Water Resources. The measures listed in **Section 5.0** would reduce these potential effects. Due to the relatively flat topography, grading activities would not create unstable slopes on or near the project site.

Stormwater runoff during construction and during operation could potentially be another source of soil erosion. However, in order to comply with the U.S. Environmental Protection Agency's (USEPA) National Pollution Discharge Elimination System (NPDES) program under the Clean Water Act, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared to address water quality impacts associated with construction and operation of the casino. The SWPPP would identify best management practices (BMP's) and the location of construction and operational erosion control features, thereby ensuring that adverse effects resulting from erosion are reduced to insignificant levels. A detailed list of erosion control construction and measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

Expansive soils are not present on the surface of the Barstow site. The expansion rating for near-surface soils on site is low. Development of Alternative A would have no adverse effects related to expansive soils.

Soil Corrosivity

Corrosion is an electrochemical process affecting degradation of metals or metal-containing materials in contact with water. This process is discussed in detail in **Section 3.1**. Sandy soils found on the Barstow site rate high on the resistivity scale, and therefore, are considered the least corrosive. Development of Alternative A would have no adverse effects related to soil corrosivity.

Seismic Hazards

The project site is located within a seismically active region. **Section 3.1** identifies the probability for a seismic event to cause destructive ground acceleration at the Barstow site. According to **Table 3.1-2**, the Barstow site is within a region having a 10 percent chance of exceeding 0.25g acceleration in a seismic event, with a corresponding MMI Intensity Value of VIII. At this level of acceleration, damage would be slight in specially designed structures.

The casino and related facilities would be constructed in accordance with International Building Code (IBC) guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. As identified in **Section 5.1**, the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code and to adopt building standards and codes no less stringent than those adopted by the City. Further, the Tribe has agreed to ensure compliance with the City's adopted codes including those pertaining to building standards and to contract with the City to provide planning, building and safety, fire prevention, and public works personnel to review any and all construction plans and inspect construction of all improvements on or off the trust lands. The Barstow site does not fall within an Alquist-Priolo Zone and is therefore not subject to any building restrictions applicable to properties designated as such. Development of Alternative A would have no adverse effects related to seismic hazards.

Liquefaction

Based on the liquefaction analyses in **Section 3.1**, there is no substantial risk of liquefaction in the project area. Development of Alternative A would have no adverse effects related to liquefaction.

Lateral Spreading

Lateral spreading is commonly associated with liquefaction. There is no substantial risk of liquefaction in the project area, lateral spreading is unlikely to occur on the Barstow site. Development of Alternative A would have no adverse effects related to lateral spreading.

Seismically Induced Flooding

The Barstow site is not located downstream from any major dams or reservoirs that could inundate the project site in the event of seismically induced breakage. Development of Alternative A would have no adverse effects related to seismically induced flooding.

Mineral Resources

As there are no known or mapped mineral resources within the Barstow site, construction and operation of Alternative A is not anticipated to impact or be impacted by mineral resources. The alterations in land use on the Barstow site would not result in a loss of economically viable aggregate rock or diminish the extraction of important ores or minerals. Development of Alternative A would have no adverse effects related to mineral resources.

4.1.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Topography and Landslides

Construction of Alternative B would require alterations to the topographical characteristics of the Barstow site similar to those described for Alternative A. As discussed under Alternative A, there is no sloping ground that would be subject to instability or landslides on or adjacent to the Barstow site; therefore, landslides cannot occur. Development of Alternative B would not have an adverse effect on topographic characteristics.

Soils

Soil Erosion

As with Alternative A, construction activities associated with Alternative B could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A detailed list of erosion control measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

As discussed under Alternative A, expansive soils are not present on the surface of the Barstow site. The expansion rating for near-surface soils on-site is low. Development of Alternative B would have no adverse effects related to expansive soils.

Soil Corrosivity

As discussed under Alternative A, the potential for corrosivity is low. Development of Alternative B would have no adverse effects related to soil corrosivity.

Seismicity

As stated under Alternative A, the Barstow site is located within a seismically active region. The casino and related facilities would be constructed in accordance with IBC guidelines and adopted City Codes, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. Construction methods and design would be similar to Alternative A. Development of Alternative B would have no adverse effects related to seismicity.

Liquefaction

As discussed under Alternative A, there is no substantial risk of liquefaction in the project area; therefore, development of Alternative B would have no adverse effects related to liquefaction.

Lateral Spreading

As discussed under Alternative A, lateral spreading is unlikely to occur on the Barstow site; therefore, development of Alternative B would have no adverse effects related to lateral spreading.

Seismically Induced Flooding

As discussed under Alternative A, the Barstow site is not subject to any type of seismically induced flooding; therefore, no adverse effects would occur under Alternative B.

Mineral Resources

Similarly to Alternative A, construction and operation of Alternative B is not anticipated to impact or be impacted by mineral resources. Development of Alternative B would have no adverse effects related to mineral resources.

4.1.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Topography and Landslides

Construction of Alternative C would require alterations to the topographical characteristics of the Los Coyotes site. In general, the Los Coyotes site is flat, but sloped slightly from the northeastern corner to the southwestern corner. Some of the surrounding hills exceed 500 feet amsl; however, the perpendicular orientation of the hills to the project site reduces the likelihood of landslides. Landslides are therefore not

likely to occur. Development of Alternative C would have no adverse effects on topographic characteristics.

Soils

Soil Erosion

As with Alternative A, construction activities associated with Alternative C could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A detailed list of erosion control measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

Expansive soils are not present on the surface of the Los Coyotes site. The expansion rating for near-surface soils on-site is low. Development of Alternative C would have no adverse effects related to expansive soils.

Soil Corrosivity

Due to the soil composition at the Los Coyotes site and its inherently high sand content, the potential for corrosivity is low. Development of Alternative C would have no adverse effects related to soil corrosivity.

Seismicity

The Los Coyotes site is located near three faults, including one that runs through the Los Coyotes Reservation. **Section 3.1** identifies the probability for a seismic event to cause destructive ground acceleration at the Los Coyotes site. According to **Table 3.1-2**, the Los Coyotes site is within a region having a 10 percent chance of exceeding 0.60g acceleration in a seismic event, with a corresponding MMI Intensity Value of X. The casino and related facilities would be constructed in accordance with IBC guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. The Los Coyotes site does not fall within an Alquist-Priolo Zone, and is therefore not subject to any building restrictions applicable to properties designated as such. Development of Alternative C would have minimal adverse effects related to seismic activity and associated hazards.

Liquefaction

Based on the liquefaction analyses in **Section 3.1**, there is no substantial risk of liquefaction in the vicinity of the Los Coyotes site. Development of Alternative C would have no adverse effects related to liquefaction.

Lateral Spreading

Lateral spreading is commonly associated with liquefaction. It is unlikely to occur on the Los Coyotes site. Development of Alternative C would have no adverse effects related to lateral spreading.

Seismically Induced Flooding

The site is not located downstream from any major dams or reservoirs that could inundate the site in the event of seismically induced breakage. Development of Alternative C would have no adverse effects related to seismically induced flooding.

Mineral Resources

The alterations in land use under Alternative C would not result in a loss of economically viable aggregate rock or diminish the extraction of important ores or minerals. Development of Alternative C would have no adverse effects related to mineral resources.

4.1.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Topography and Landslides

As discussed under Alternative C, the Los Coyotes site is generally flat, but sloped slightly from the northeastern corner to the southwestern corner. Adjacent hills perpendicular to the project site can exceed 500 feet amsl. As stated under Alternative C, due to the Los Coyotes site flat topography and orientation to the surrounding hills, landslides are not likely to occur. Development of Alternative D would have no adverse effects on topography and landslides.

Soils

Soil Erosion

As with Alternative A, construction activities associated with Alternative D could result in temporary soil erosion, which can drastically alter the drainage pattern of an area and result in the sedimentation of surface waters if not properly addressed through standard construction specifications. A detailed list of erosion control measures that would be used as mitigation is provided in **Section 5.0**.

Expansive Soils

As discussed under Alternative C, expansive soils are not present on the surface of the Los Coyotes site. The expansion rating for near-surface soils on-site is low. Development of Alternative D would have no adverse effects related to expansive soils.

Soil Corrosivity

As discussed under Alternative C, the potential for corrosivity at the Los Coyotes site is low and no adverse effects would occur from development of Alternative D.

Seismicity

As stated under Alternative C, the Los Coyotes site is located near three faults, including one that runs through the Los Coyotes Reservation. The campground facilities would be constructed in accordance

with IBC guidelines, particularly those pertaining to earthquake design, in order to safeguard against major structural failures and loss of life. As there would be no habitable structures developed under Alternative D, no adverse effects related to seismic activity would occur.

Liquefaction

As discussed under Alternative C, there is no substantial risk of liquefaction in the vicinity of the Los Coyotes site and no adverse effects would occur from development of Alternative D.

Lateral Spreading

As discussed under Alternative C, lateral spreading is unlikely to occur on the Los Coyotes site and no adverse effects would occur from development of Alternative D.

Seismically Induced Flooding

As discussed under Alternative C, the site is not located downstream from any major dams or reservoirs that could inundate the site in the event of seismically induced breakage. Development of Alternative D would have no adverse effects related to seismically induced flooding.

Mineral Resources

As discussed under Alternative C, the alterations in land use on the Los Coyotes site would not result in a loss of economically viable aggregate rock or diminish the extraction of important ores or minerals. Development of Alternative D would have no adverse effects related to mineral resources.

4.1.5 ALTERNATIVE E– NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.2 WATER RESOURCES

This section identifies the direct effects to water resources anticipated to result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.2**. Cumulative effects are identified in **Section 4.13**. Indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Measures to avoid and, if necessary, mitigate for adverse effects are presented in **Section 5.2**.

Assessment Criteria

Adverse effects to surface water resources would result if either construction or operation would substantially alter, impede, or degrade drainage patterns, floodplain management, and/or water quality. Adverse effects to groundwater resources would result if either construction or operation would substantially decrease groundwater levels, reduce or impede groundwater recharge, and/or degrade groundwater quality.

4.2.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Surface Water

Drainage

Although annual precipitation rates are quite low for the project site, short duration peak rainfall intensity in the area may be considerable during summer thunderstorms. Implementation of Alternative A would alter the existing drainage pattern of the site and increase stormwater runoff as a result of increased impervious surfaces. Alternative A would convert approximately 23.1-acres of the vacant parcel into a hotel and casino complex, surface roads, and parking areas, which would result in an increase in stormwater runoff over pre-development rates during 10 and 100-year storm events (Questa, 2007). **Table 4.2-1** summarizes the estimated rainfall and runoff for the development of Alternative A (without detention measures). As discussed in **Subsection 2.2.1**, drainage facilities have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash. The Drainage and Water Quality Analyses (Questa, 2007), included as **Appendix E** of the Draft EIS/TEIR, describe the drainage plan for the project site under Alternative A. Inclusion of these drainage facilities into the project design would avoid potential adverse effects associated with stormwater runoff.

TABLE 4.2-1
ESTIMATED RAINFALL AND RUNOFF FOR ALTERNATIVE A

Storm Frequency	1-hour Precipitation Rates	Pre-Development Runoff Rate	Alternative A Runoff Rate
10-year	0.75 inches	12.5 cfs	81.78 cfs
100-year	1.2 inches	56.25 cfs	133.76 cfs
Source: Questa, 2007.			

Flooding

Federal Executive Order 11988 addresses floodplain management. The order requires the evaluation of federal actions taken in a floodplain. Specifically, the order states that agencies shall first determine whether a proposed action would occur in a floodplain. If an agency proposes to allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplain. If the only practicable alternative action requires siting facilities in a floodplain, the agency shall minimize potential adverse impacts to the floodplain.

As noted in **Subsection 3.2.1**, the western 10.5 acres of the project site are within the 100-year floodplain. This area encompasses the parking areas, access roads, and stormwater retention facilities. Flooding in these areas would reduce access to the site. However, development of Alternative A would not impede the floodway and would result in a no flood risk to proposed structures. Furthermore, fill would not be imported to the site and thus floodplain elevations would not increase. The remainder of the project related development is outside the 100-year floodplain.

Water Quality

Construction Impacts

Construction of Alternative A would result in ground disturbance, which could lead to erosion. Erosion increases sediment discharge to surface waters during storm events, reducing water quality. Construction also has the potential to generate waste materials (e.g., concrete, drywall, metal, and wood from building rubble; and diesel, oil, and grease from heavy equipment and temporary on-site fuel storage) that can become entrained in surface flow and washed into nearby surface waters during storm events. Potential discharges of pollutants to surface waters from construction wastes and fuel spills and leaks would adversely impact off-site drainages.

Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) (33 USC § 1342). NPDES is a national program for regulating and administering permits for discharges, including stormwater, to receiving waters, including man-made drainages. Construction sites disturbing more than five acres must apply for a Phase I NPDES General Construction Permit. The United States Environmental Protection Agency (USEPA) is ultimately charged with regulating discharges to surface waters. In nearly all states, including California, the USEPA has delegated permitting authority to the state water quality management programs; however, the USEPA continues to regulate discharges to waters in Indian country.

During construction, erosion control measures shall be employed in compliance with the Phase I NPDES General Construction Permit for construction activities as noted in **Section 1.4**. A Stormwater Pollution Prevention Plan (SWPPP) will be developed prior to any ground disturbance at the project site and shall include practices to reduce potential surface water contamination during storm events. Implementation of the Best Management Practices (BMPs) incorporated into the SWPPP, as discussed in **Chapter 2.0**, would assure no adverse impacts to surface water resources occur from construction of Alternative A.

Operational Impacts

Operation of Alternative A could result in off-site discharge of stormwater runoff contaminated with automobile contaminants, debris from patrons, and dissolved solids from landscaping. Therefore, the drainage plan incorporated into the project description includes infiltration and oil/water separators to improve stormwater quality prior to retention. As noted above, the drainage plan incorporates basins, landscaping, infiltration areas, and a retention basin. Stormwater would traverse through a series of infiltration areas and basins before entering a detention basin located along the western border of the project site. Stormwater would then be discharged to the Lenwood Wash at pre-existing rates. The drainage plan is designed to treat the first flush of the storm, which would contain the highest concentration of entrained contaminants. Once stormwater flow has reached levels surpassing the retention volume of the project site, water would be considered "clean," similar to roof runoff, as contaminants that were present throughout the site have already been flushed. Alternative A would not result in significant adverse effects to water quality. Overall project design and recommended best management practices (BMPs) presented in **Section 5.2** would further reduce the potential for adverse effects to water quality.

Groundwater

Groundwater Supply

Potable water would be supplied by the available capacity of the Golden State Water Company. Therefore, development of Alternative A would not require the use of on-site groundwater resources. As noted above, a drainage plan has been incorporated into project design and includes stormwater detention areas that would allow percolation into the soil. In order to ensure that the off-site discharge rate would be equal to pre-development rates, the additional stormwater generated from the introduction of impervious surfaces would be detained on-site so that groundwater recharge rates are not affected. No adverse effects would occur to groundwater supply.

Groundwater Quality

Site runoff could impact groundwater quality if contaminants entrained in the stormwater percolate to the groundwater table. With a depth to groundwater of over 230 feet, the stormwater that would have already been filtered through filter strips, landscaped areas, and infiltration areas would be adequately filtered through the process of soil absorption and infiltration prior to reaching groundwater. Through soil absorption, contaminants in the stormwater adhere to the surface of soil particles as the water passes through. Infiltration involves contaminants settling in the tiny spaces created by the shapes of soil components. By the time stormwater reaches the groundwater table, it would be of similar quality to pre-existing conditions. Alternative A would not result in significant adverse effects to groundwater quality. Overall project design and recommended BMPs presented in **Section 5.2** would ensure adverse effects to groundwater quality would not occur.

4.2.2 ALTERNATIVE B – BARSTOW REDUCED CASINO -HOTEL COMPLEX

Surface Water

Drainage

Implementation of Alternative B would alter existing drainage patterns and increase stormwater runoff compared to existing conditions. Alternative B would convert approximately 23.1-acres of vacant land into impervious surfaces such as parking lots and the building footprint. This would result in an increase in stormwater runoff during 10 and 100-year storm events (Questa, 2007). **Table 4.2-2** summarizes the estimated rainfall and runoff rate for Alternative B (without detention measures). As discussed in **Subsection 2.2.2**, drainage provisions have been incorporated into the project description to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash. With the inclusion of the drainage plan into the project design, no impacts associated with stormwater runoff would occur.

TABLE 4.2-2
ESTIMATED RAINFALL AND RUNOFF FOR ALTERNATIVE B

Storm Frequency	1-hour Precipitation	Pre-Development Runoff Rate	Alternative B Runoff Rate
10-years	0.75 inches	12.5 cfs	83.5 cfs
100-years	1.2 inches	56.25 cfs	136.8 cfs
Source: Questa, 2007.			

Flooding

Impacts for Alternative B would be similar to those discussed for Alternative A. Implementation of Alternative B would not place structures in an area that would be prone to flooding nor alter or impede the floodway. As such, no adverse effects associated with flooding would occur.

Water Quality

Construction Impacts

Similar to Alternative A, during construction of Alternative B, potential discharges of pollutants to surface waters from construction wastes and fuel spills and leaks could adversely impact off-site drainages. Due to the reduced excavation and construction schedule required for Alternative B compared to Alternative A, potential for impact from erosion is significantly reduced. Erosion control measures shall be employed in compliance with the Phase I NPDES General Construction Permit for construction activities as noted in **Section 1.4**. A SWPPP will be developed prior to any ground disturbance at the project site and shall include practices to reduce potential surface water contamination during storm events. Implementation of the Best Management Practices (BMPs) incorporated into the SWPPP, as discussed in **Chapter 2.0** and presented in **Section 5.2**, would ensure adverse effects to surface water resources would not occur from construction of Alternative B.

Operational Impacts

Operation of Alternative B has the potential to discharge stormwater entrained with contaminants from various sources including on-site parking lots. The drainage plan incorporated into the project design of

Alternative B includes BMPs to improve stormwater quality prior to discharge or retention. Alternative B would not result in significant adverse effects to surface water quality. Project design and recommended measures presented in **Section 5.2** would further minimize the potential for adverse effects.

Groundwater

Groundwater Supply

Similar to Alternative A, implementation of Alternative B would meet water demands through connection to Golden State Water Company water supply distribution system. Alternative B would increase ground water recharge by channeling and storing stormwater into on-site detention ponds to increase stormwater infiltration. There would be no adverse impact to the groundwater supply.

Groundwater Quality

The drainage plan for Alternative B includes the same water quality features described for Alternative A. As discussed above, soil absorption and infiltration would further improve stormwater quality prior to convergence with groundwater resources. Therefore, implementation of Alternative B would not result in significant adverse effects to groundwater quality. Project design and recommended BMPs presented in **Section 5.2** would further minimize all identified adverse effects.

4.2.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Surface Water

Drainage

Implementation of Alternative C would alter the existing drainage pattern and increase impervious surfaces on the Los Coyotes site. Annual precipitation rates for the desert area that includes the Los Coyotes Reservation are quite low. However, short duration peak rainfall intensity in the area may be considerable during summer thunderstorms. Construction of Alternative C would convert 11.5 acres (90 percent) of undeveloped land into impervious surfaces for the development of the building footprint, sidewalks and parking areas, and the WWTP and storage tanks. This would result in an increase in stormwater runoff compared to existing conditions (50-year storm) (Questa, 2007). **Table 4.2-3** summarizes the estimated increase in stormwater runoff with implementation of Alternative C. As discussed is **Subsection 2.2.3**, drainage features have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate. With the inclusion of the drainage provisions into the project description, Alternative C would not result in significant adverse effects associated with stormwater runoff.

TABLE 4.2-3
ESTIMATED RAINFALL AND RUNOFF FOR ALTERNATIVE C

Storm Frequency	24-hour Precipitation	Pre-Development Runoff Rate	Alternative C Runoff Rate
50-years	10.0 inches	31 cfs	128 cfs
100-years	11.0 inches	34 cfs	142 cfs
Source: Questa, 2007.			

Flooding

The Los Coyotes site is not located within a floodplain as depicted by Federal Emergency Management Agency (FEMA) flood insurance rate maps. The area is designated Zone D, an undetermined zone. The drainage plan would ensure localized and downstream flooding would not occur as a result of the development of Alternative C. Alternative C would not result in adverse effects associated with flooding.

Water Quality

Under Alternative C, off-site water quality impacts would be similar to Alternative A. The introduction of impervious surfaces increases the potential for entrained contaminants in stormwater runoff. As discussed under Alternative A the implementation of the BMPs incorporated into the SWPPP, as discussed in **Chapter 2.0**, would assure no adverse impacts to surface water resources would occur from construction or operation of Alternative C.

Groundwater

Groundwater Supply

As identified in **Section 2.2.3**, Alternative C would have an average daily water demand of 10,110 gpd. To meet this demand, a new groundwater well would be constructed. The groundwater within the region is typically associated with fractured igneous rocks, which are typically hydrologically linked less often than other groundwater deposits. Because of the distance between the project site and the Reservation boundary (2.5 miles south of the project site), development of Alternative C would not impact the groundwater supply of off-site wells. There would be no adverse impact to the groundwater supply.

Groundwater Quality

Alternative C would incorporate filter strips, stormwater interceptors, and soil infiltration into its drainage plan. These design principles would ensure that infiltration of stormwater would not adversely impact groundwater quality. Groundwater quality could also be impacted through subsurface wastewater disposal, as recommended for Alternative C. As discussed in **Chapter 2.0**, wastewater would be treated to a tertiary level and disinfected for recycling in accordance with California Department of Health Title 22 standards (Title 22). Subsurface disposal would consist of drip irrigation at a depth of 12 inches below ground surface. This type of disposal is appropriate for disinfected tertiary treated wastewater as it allows more vegetative uptake of the water and associated nutrients and maintains a greater separation from the groundwater table than standard subsurface disposal techniques. Because treated wastewater would be of high quality and would have the maximum separation from the groundwater table allowing for more soil contact, wastewater disposal for Alternative C would not adversely impact groundwater quality. Significant adverse effects to groundwater quality would not occur. Project design and recommended measures presented in **Section 5.2** would further minimize all identified adverse effects.

4.2.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Surface Water

Drainage

The potential adverse effects associated with construction and operation of a campground at the Los Coyotes site would be similar to those identified under Alternative C, although to a much lesser degree. The potential adverse effects would include changes to the existing drainage pattern, increased stormwater runoff as depicted in **Table 4.2-4**, and increased potential for entrainment of stormwater contaminants. Based on the estimated runoff rates identified in **Table 4.2-4**, detention of 0.17 and 0.19 acre-feet for the 10-year and 100-year storms, respectively, would be required to ensure runoff rates do not exceed pre-existing conditions. The total combined storage volumes of the filter strips, landscape areas, and detention basins would provide the necessary detention, reducing impacts from the construction of impervious surfaces. Significant adverse effects to off-site and on-site drainages would not occur.

TABLE 4.2-4
ESTIMATE RAINFALL AND RUNOFF FOR ALTERNATIVE D

Storm Frequency	24-hour Precipitation	Pre-Development Runoff Rate	Alternative D Runoff Rate
50-years	10.0 inches	31 cfs	73 cfs
100-years	11.0 inches	34 cfs	81 cfs
Source: Questa, 2007			

Flooding

Impacts for Alternative D would be similar to those discussed for the Alternative C. Located outside the floodplain as depicted by FEMA flood insurance rate maps, the area is designated as an undetermined zone. The drainage plan ensures flooding would not occur as a result of the implementation of Alternative D. Significant adverse effects associated with flooding would not occur.

Water Quality

Potential impacts of Alternative D to off-site water quality would be similar to those of the other project alternatives. The introduction of impervious surfaces increases the potential for entrained contaminants in stormwater runoff. As discussed under Alternative C the implementation of the BMPs incorporated into the SWPPP, as discussed in **Chapter 2.0**, would assure no adverse impacts to surface water resources to occur from construction or operation of Alternative D.

Groundwater

Groundwater Supply

As identified in **Section 2.2.4**, Alternative D would have an average daily water demand of 7,210 gpd. As discussed for Alternative C, the water demand would be met without adversely affecting adjacent groundwater supplies and wells. There would be no adverse impact to the groundwater supply.

Groundwater Quality

Groundwater quality would not be adversely affected because of the water quality measures incorporated into project design as discussed in **Chapter 2.0**. Furthermore, the shallow drip-irrigation method of wastewater disposal would increase soil contact time prior to reaching the groundwater table. There would be no adverse impact to the groundwater quality.

4.2.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur under Alternative E.

4.3 AIR QUALITY

Introduction

This section identifies the direct effects to air quality that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.3**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.3**.

Global Assessment Criteria

Adverse effects to ambient air quality could result if either construction or operation would result in violations of the Federal Clean Air Act (CAA) provisions, or if emissions would impede a state's ability to comply with the California Clean Air Act (CCAA) and to meet national ambient air quality standards (NAAQS).

4.3.1 METHODOLOGY

Emissions resulting from the alternatives are analyzed in two distinct phases, construction and operational. Construction emissions are intermittent and temporary in nature and do not overlap with the operational phase. Pollutants of concern during construction are those that are designated as non-attainment in the respective Air Basin for each of the alternatives. For Alternatives A and B in the Mojave Desert Air Basin, this includes ozone (the largest sources of which are NO_X and ROG emissions), and particulate matter less than 10 microns in diameter (PM_{10}), and for Alternatives C and D in the San Diego Air Basin, includes ozone only (NO_X and ROG emissions). NO_X and ROG are produced during combustion of diesel and gasoline fuels in heavy equipment and emitted by employee vehicles. The bulk of PM_{10} emissions are from fugitive dust, which is produced during grading activities.

Operational emissions consist of area and vehicle emissions. Pollutants of concern from vehicle emissions are NOx, ROG, and carbon monoxide (CO). CO is a localized pollutant and dissipates readily; therefore, CO is analyzed under "CO Hot Spot Analysis."

Construction

URBEMIS is an Environmental Protection Agency (EPA) and California Air Resource Board (CARB) air quality computer model that estimates construction, area source, and operational emissions of CAPs and carbon dioxide (CO_2) from land uses. URBEMIS 2007, which is the most recent version of the software, uses the most relevant EPA, CARB, and/or district-specific emission factors, meteorological data, and estimates emissions reductions. URBEMIS was used to estimate emissions from all construction-related sources of the project alternatives. URBEMIS modeling was performed with the assumption that construction would begin in January 1, 2012 and continue at an average of 22 days per month for 15 months. For Alternative A, exported soil will be trucked off-site from excavation activities related to the below ground parking structure. A conservative quantity of exported soil was used in the URBEMIS model to determine emissions from the export of soil. No export of material would be required for

Alternatives B, C, and D. Emissions results from URBEMIS are presented below and URBEMIS output files are included within **Appendix L** of the Draft EIS/TEIR.

Operation

URBEMIS was used to estimate emissions associated with operation of the project alternatives. Input values for the model included URBEMIS defaults and site specific data. The operational effects to air quality were analyzed for both near-term 2013 conditions and cumulative long-term 2030 conditions. Emissions associated with operation are compared to the general conformity *de minimus* levels to evaluate the effects of operational activities on air quality.

Trip Generation Rates

The trip generation rates used in the URBEMIS air quality model are from the Institute of Transportation Engineers, Trip Generation Manual, 7th Edition (ITE) and the transportation/circulation reports from similar Indian casino projects. The Manual includes trip generation rates for Las Vegas style casinos; however, it does not include trip generation rates for Indian gaming facilities Indian gaming facilities are generally different than Las Vegas style casinos in location, gaming, and size; therefore, using the Manual's Las Vegas casino trip generation rates would not accurately depict the proposed casino project. The trip generation rates used to determine air quality impacts is based on six northern California Indian casinos traffic surveys conducted by Fehr and Peers and David Evans and Associates, and presented in the Shingle Springs Rancheria Interchange 2001, *Traffic Operation Analysis* (SSRI, 2001). The trip generation rate was determined to be 39.43 trips per thousand square feet of casino floor space. The casino floor space was determined by subtracting the square footage of the pool area from the projects total square footage provided in **Table 2-1**. A hotel trip generation rate of 8.24 and 127.15 was used to determine project emissions from the hotel and high turn-over restaurant, respectively. The trip generation rate was provided by the ITE, land use category 310 and 932.

Trip Distribution

The average vehicle trip length associated with Alternatives A and B is expected to vary from the default trip length values included in URBEMIS. Therefore, project-specific trip length values were used in the air quality analysis. **Table 4.3-1** shows the trip distance from the three major market areas. The average trip length was estimated by identifying geographic patron market areas, estimating the average distance to each market area, and estimating the percent of total patrons traveling from each market area.

TABLE 4.3-1
ALTERNATIVES A AND B TRIP DISTRIBUTION

Major Market Routes	Major Cities within Market Area	Trip Distance[1] (miles)	Percentage (%)
Site Vicinity	Barstow	2	10
South 15	Los Angeles	26	60
West 58	Bakersfield	48	30
Weighted Average Trip Length		**30**	

Notes: [1] Mileage derived from Google Earth mapping program.
Source: AES, 2009

Trip Reduction

Trip reductions were estimated to provide a more accurate measure of the total new trips produced by Alternatives A and B. Trip reductions were estimated for diverted-link and internal capture between the hotel and casino. Diverted-link trips are trips that are on the road going to a different destination and stop at the proposed facilities. Diverted-link trips would consist of vehicles traveling on Interstate 15 (I-15) between Los Angeles and Las Vegas that stop at the proposed gaming facility. The traffic volume on I-15 in the City of Barstow is 60,000 vehicles per day (Caltrans, 2009). A large number of these trips are traveling to Las Vegas and would have a tendency to stop at the proposed gaming facility. A 40 percent reduction in casino related trip generation is estimated from diverted-link trips, which equates to a 4.7 percent capture rate from I-15. A capture rate of between three and five percent is consistent with the capture rates of the casinos used to determine the trip generation rate applied to the gaming alternatives. Internal interaction between the casino and hotel would account for a 75 percent reduction in hotel trips. A 75 percent reduction in hotel trips due to internal capture is consistent with the *Mississippi Gulf Coast Transportation Management Plan for Waterfront Development*, 1993 (Plan). The Plan studied various small-rural casinos and found that there was an internal capture rate of 75 percent.

General Conformity

The United States Environmental Protection Agency (USEPA) promulgated the General Conformity Rule on November 30, 1993, to implement the conformity provision of Title I, § 176 (c)(1) of the CAA, which requires that the federal government not engage, support, or provide financial assistance for licensing, permitting, or approving any activity not conforming to an approved state implementation plan (SIP). General Conformity is an issue addressed during the National Environmental Policy Act (NEPA) process.

General Conformity Process

The conformity process involves two phases. The first phase is the conformity review process, which evaluates whether the conformity regulations would apply to the federal action (i.e. whether a determination is warranted). The second phase is the conformity determination process, which demonstrates how a federal action conforms to the applicable SIP.

Conformity Review

The purpose of a conformity review is to evaluate whether the conformity determination requirements would apply to a federal action under 40 CFR 93.153. There are four steps in the review process, of which the first three can be performed in any order. The four steps are identified below:

- Determine whether the proposed action causes emissions of criteria air pollutants (CAPs).
- Determine whether the emissions of a criteria pollutant or its precursor (i.e. nitrogen oxides [NOx] and reactive organic gases [ROG] for ozone [O_3]) would occur in a non-attainment or maintenance area for that CAP.
- Determine whether the federal action is exempt from the conformity requirement as per 40 CFR 93.153 (c)(2)-(e).

- Estimate the total emissions of the pollutants of concern from the proposed action and compare the estimates to the *de minimus* threshold of 40 CFR 93.153 (b)(1) and (2) and to the non-attainment or maintenance area's emissions inventory for each CAP.

If the proposed project and/or alternatives do not emit pollutants or are exempt under 40 CFR 93.153 (c)(2)-(e), or if the affected air basin is in attainment for all criteria pollutants, no further action is necessary. Otherwise, the proposed project's estimated emissions must be compared to the *de minimus* thresholds set forth in 40 CFR 93.153 (b)(1) and (2). If the emissions are greater than or equal to the *de minimus* threshold, a conformity determination must be performed.

General conformity thresholds would apply to Alternatives A and B because they are located in the Mohave Desert Air Basin (MDAB), which has been designated by the EPA as nonattainment for O_3 and PM_{10}. Alternatives C and D would also be subject to general conformity thresholds for ROG and NOx because they are located in the San Diego County Air Basin (SDCAB), which has been designated by the EPA as nonattainment for O_3. Urban Emission 9.2.4, 2007 (URBEMIS) air quality model does not contain meteorological data or San Diego County Air Pollution Control District (SDCAPCD) approved emission factors; therefore, Riverside County meteorological data and emission factors were used due to the proximity of the Los Coyotes site for Alternatives C and D to Riverside County.

Carbon Monoxide Hot Spot Analysis

Implementation of the project alternatives would result in emissions of CO. Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated by Hot Spot Analysis. In accordance with the *Transportation Project-Level Carbon Monoxide Protocol*, Hot Spot Analysis is conducted on intersections that after mitigation would have a level of service (LOS) of E or F (UC Davis, 1996). No intersections within the vicinity of the Barstow or Los Coyotes sites would have an LOS after the implementation of recommended mitigation that would warrant a Hot Spot Analysis (refer to the TIA provided as **Appendix H** of the Draft EIS/TEIR). No further analysis is needed.

Greenhouse Gas Emissions

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. A recent federal guidance on climate change is the CEQ's Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, released on February 18, 2010. The Draft Guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. The guidance notes that the 25,000 metric tons is not a threshold for evaluating climate change on the project level. CARB recommended in its Climate Change Scoping Plan (CARB, 2008) that climate change analysis for environmental documents include quantification of GHG emissions, assessment of the significance of any impact on climate change (provided in **Section 4.13**), and, identification of mitigation or alternatives that would reduce the GHG emissions. The analysis presented in this EIS/TEIR is consistent with the guidance

provided by CARB's 2008 Climate Change Scoping Plan. As recommended by the Proposal, this analysis considers whether project emissions are individually or cumulatively significant. Based on the Proposed Project's GHG emissions (see **Section 4.13**), it was determined that specific climate change impacts could not be attributed to the proposed development. As such, project impacts are most appropriately addressed in terms of the incremental contribution to a global cumulative impact. For a discussion and analysis of cumulative impacts related to climate change, refer to **Section 4.13**.

4.3.2 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Construction Emissions

Construction of Alternative A would result in the generation of ROG, NO_X, and PM_{10} emissions from construction work trips; construction equipment, fugitive dust, and export haul trucks. Construction emissions were estimated using URBEMIS air quality model. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR. **Table 4.3-2** presents an estimate of construction-related emissions for Alternative A.

TABLE 4.3-2
ALTERNATIVE A UNMITIGATED CONSTRUCTION EMISSIONS

Construction Year	ROG	NOX	PM10
	tons per year		
2012	3.44	9.09	5.78
2013	1.22	1.02	0.08
Max Emissions	**3.44**	**9.09**	**5.78**
De Minimus Levels	25	25	100
Exceedance	*No*	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR)

Operational Emissions

Emissions of ROG, NOx, and PM_{10}, from area sources and vehicles traveling to and from Alternative A were estimated. **Table 4.3-3** presents area and mobile source emissions for Alternative A.

TABLE 4.3-3
ALTERNATIVE A UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx	PM_{10}
	tons per year		
Area	0.45	0.53	0.00
Mobile	26.77	42.45	60.47
Total Emissions	**27.22**	**42.98**	**60.47**
De Minimus Levels	25	25	100
Exceedance	*Yes*	*Yes*	*No*

Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)

Air Quality Effects - General Conformity Review

Since Alternative A emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone and PM_{10}, the estimated emissions must be compared to the *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-2** and **4.3-3** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions do not exceed *de minimus* levels; however, operational emissions exceed *de minimus* levels for ROG and NOx; therefore, a conformity determination is needed to demonstrate that the Proposed Project conforms to the approved state implementation plan (SIP). There are several options for Alternative A to demonstrate conformance with the approved SIP: 1) offset emission credits may be purchased for the total direct and indirect emissions, which fully offsets within the same non-attainment or maintenance area so that there is no net increase in emissions, 40 CFR 93.158 (a)(2); 2) emissions from the project coupled with the current emissions in the non-attainment area would not exceed the emissions budget in the SIP, 40 CFR 93.158 (a)(5)(i)(A); or 3) the Proposed Project can request that the SIP be changed by the State Governor or the State Governor's designee to include the emissions budget of the Federal action, 40 CFR 93.158 (a)(5)(i)(B). A conformity determination for Alternative A is ongoing (refer to **Appendix P** of the Final EIS/TEIR). It is anticipated that conformity will be shown through the purchase of offset emission credits; therefore, mitigation has been required in **Section 5.3** that would reduce operational emissions and require the purchase of off-set emission credits so that there is no net increase in NOx or ROG emissions, meeting federal general conformity requirements. Therefore, after mitigation, Alternative A would not result in significant adverse effects to local or regional air quality.

4.3.3 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Construction Emissions

Construction of Alternative B would result in the generation of ROG, NO_X, and PM_{10} emissions from construction work trips; construction equipment, and fugitive dust from grading and earth moving activities. **Table 4.3-4** presents an estimate of construction-related emissions for Alternative B.

TABLE 4.3-4
ALTERNATIVE B UNMITIGATED CONSTRUCTION EMISSIONS

Construction Year	ROG	NO_X	PM_{10}
	tons per year		
2012	2.65	8.44	2.94
2013	0.90	0.96	0.07
Max Emissions	**2.65**	**8.44**	**2.94**
De Minimus Levels	25	25	100
Exceedance	*No*	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR).

Operational Emissions

Trip Generation Rates and Trip Distribution

The trip generation rate used to estimate mobile emissions for the casino component of Alternative B is the same as Alternative A (39.43 trips per thousand square feet of casino floor space). The trip distribution for Alternative B is also the same as Alternative A.

Operational Emissions

Emissions of ROG, NOx, and PM_{10}, from area sources and vehicles traveling to and from Alternative B were estimated. **Table 4.3-5** presents area and mobile source emissions for Alternative B.

TABLE 4.3-5
ALTERNATIVE B UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx	PM10
	tons per year		
Area	0.34	0.37	0.00
Mobile	19.74	31.41	44.75
Total Emissions	**20.08**	**31.78**	**44.75**
De Minimus Levels	25	25	100
Exceedance	*No*	*Yes*	*No*
Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)			

Air Quality Effects - General Conformity Review

Since Alternative B emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone and PM_{10}, the estimated emissions must be compared to the *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-4** and **4.3-5** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions do not exceed *de minimus* levels; however, operational emissions exceed *de minimus* levels for NOx; therefore, Alternative B would have a potentially adverse effect on local and regional air quality and a conformity determination is required (refer to **Appendix P** of the Final EIS/TEIR). It is anticipated that conformity will be shown through the purchase of offset emission credits; therefore, mitigation has been required in **Section 5.3** that would reduce operational emissions and require the purchase of off-set emission credits so that there is no net increase in NOx emissions, meeting federal general conformity requirements. Therefore, after mitigation, Alternative B would not result in significant adverse effects to local and regional air quality.

4.3.4 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Construction Emissions

Construction of Alternative C would result in the generation of ROG and NO_X emissions. **Table 4.3-6** presents an estimate of construction-related emissions for Alternative C. As detailed in the URBEMIS output files provided as **Appendix L** of the Draft EIS/TEIR, emissions have been estimated for all phases of construction, including mass grading, fine grading, building, painting, and paving.

TABLE 4.3-6
ALTERNATIVE C UNMITIGATED CONSTRUCTION EMISSIONS

Year	ROG	NO_X
	tons per year	
2012	0.15	0.98
2013	0.31	0.86
Max Emissions	**0.31**	**0.98**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR)

Operational Emissions

Trip Generation Rate

The trip generation rate applied to Alternative C is the same as Alternative A (39.43 trips per thousand square feet of casino floor space). Under Alternative C, no diverted-link reduction was used. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR.

Trip Distribution

The average length of vehicle trips associated with Alternative C is expected to vary from the default trip length values provided in the URBEMIS air quality model. Therefore, a project-specific trip length was used in the air quality analysis. The project would attract patrons from San Diego County and the surrounding counties; therefore a conservative 70 mile trip length was used to determine air quality impacts.

TABLE 4.3-7
ALTERNATIVE C UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx
	tons per year	
Area	0.05	0.03
Mobile	8.67	16.61
Total Emissions	**8.72**	**16.64**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)

Operational Emissions

Emissions of ROG and NOx, from area sources and vehicles traveling to and from Alternative C were estimated. **Table 4.3-7** presents area and mobile source emissions for Alternative C. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR.

Air Quality Effects - General Conformity Analysis

Since Alternative C emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone, the estimated project emissions must be compared to *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]). **Tables 4.3-6** and **4.3-7** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions and operational emissions do not exceed *de minimus* levels; therefore, Alternative C conforms to the applicable state implementation plan and would not result in significant adverse effects to local and regional air quality. Construction best management practices provided in **Section 5.3** would further reduce construction related emissions.

Odor

Alternative C would result in the development of a wastewater treatment plant (WWTP). As discussed in **Section 2.2.4** of the EIS/TEIR, the WWTP would consist of a tertiary treatment facility utilizing a membrane bioreactor (MBR). Treated wastewater would be disposed of through a subsurface disposal system. The MBR system would minimize the potential for odors emitted by the small WWTP (approximately 9,000 gallons per day of effluent). The subsurface disposal of treated wastewater would further reduce odors. Given the size of the WWTP, the proposed process by which the wastewater is treated, the distance of the nearest sensitive receptor (approximately two miles), and the mountainous topography, odors emitted by the WWTP would not be detectable at the nearest sensitive land use. No further analysis is needed.

4.3.5 ALTERNATIVE D – LOS COYOTES CAMPGROUND

Construction Emissions

Construction of Alternative D would result in the generation of ROG and NO_X emissions. **Table 4.3-8** presents an estimate of these construction-related emissions for Alternative D. As detailed in the URBEMIS output files provided as **Appendix L** of the Draft EIS/TEIR, emissions have been estimated for all phases of construction, including mass grading, fine grading, building, painting, and paving.

Operational Emissions

Trip Generation Rate

The trip generation rate used in the URBEMIS model was provided by the Institute of Traffic Engineers Manual, 7th Edition, 2004, land use code 416. URBEMIS output files are provided in **Appendix L** of the Draft EIS/TEIR.

TABLE 4.3-8
ALTERNATIVE D UNMITIGATED CONSTRUCTION EMISSIONS

Year	ROG	NO_X
	tons per year	
2012	0.18	0.95
2013	0.21	1.14
Max Emissions	**0.21**	**1.14**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Notes: Emissions shown are for the highest year in the multi-year construction period.
Source: URBEMIS, 2007: (**Appendix L** of the Draft EIS/TEIR)

Trip Distribution

The trip distribution for Alternative D is the same as Alternative C.

Operational Emissions

Emissions of ROG and NOx, from area sources and vehicles traveling to and from Alternative D were estimated. **Table 4.3-9** presents area and mobile source emissions for Alternative D**.**

TABLE 4.3-9
ALTERNATIVE D UNMITIGATED OPERATIONAL EMISSIONS

Source	ROG	NOx
	tons per year	
Area	0.02	0.00
Mobile	13.65	25.85
Total Emissions	**13.67**	**25.85**
De Minimus Levels	100	100
Exceedance	*No*	*No*

Source: URBEMIS 2007: (**Appendix L** of the Draft EIS/TEIR)

Air Quality Effects - General Conformity Analysis

Since Alternative D emits pollutants, is not exempt from conformity, and is located within a nonattainment area for ozone, the estimated project emissions must be compared to *de minimus* thresholds pursuant to the CAA General Conformity Rule (40 CFR § 93.153 [b][1] and [2]).

Tables 4.3-8 and **4.3-9** compare construction and operational emissions, respectively to the applicable conformity thresholds. Construction emissions and operational emissions do not exceed *de minimus* levels; therefore, Alternative D conforms to the applicable state implementation plan and would not result in significant adverse effects to local and regional air quality.

Odor

Alternative D would result in the development of a wastewater treatment plant (WWTP). As discussed in **Section 2.2.4** of the EIS/TEIR, the WWTP would consist of a tertiary treatment facility utilizing a membrane bioreactor (MBR). Treated wastewater would be disposed of through a subsurface disposal system. The MBR system would minimize the potential for odors emitted by the small WWTP (less than 6,400 gallons per day of effluent). The subsurface disposal of treated wastewater would further reduce odors. Given the size of the WWTP, the proposed process by which the wastewater is treated, the distance of the nearest sensitive receptor (approximately two miles), and the mountainous topography, odors emitted by the WWTP would not be detectable at the nearest sensitive land use. No further analysis is needed.

4.3.6 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potential adverse effects to air quality identified for Alternatives A through D are anticipated to occur.

4.4 BIOLOGICAL RESOURCES

This section identifies the effects to biological resources that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.4**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.4**.

Assessment Criteria

Adverse effects to biological resources would occur if either construction or operation would result in the destruction of critical habitat, the filling of waters of the United States (U.S.) (including wetlands), or the take of special status species. The analysis of potential effects was based on the biological setting as determined by field surveys conducted by Analytical Environmental Services (AES) in 2006; informal consultation with the United States Fish and Wildlife Service (USFWS); and a review of pertinent scientific literature and data, including the California National Diversity Database (CNDDB) and California Native Plant Society (CNPS) lists. A Biological Assessment (BA) has been prepared for Alternatives A and B and is included as **Appendix T** of the Final EIS/TEIR. Potential effects to biological resources associated with the development of each project alternative are discussed below.

4.4.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Habitats

Alternative A would disturb a majority of the Barstow site and would impact most of the Mojave creosote bush scrub habitat. As discussed in **Subsection 3.4.1**, Mojave creosote bush scrub provides generally suitable habitat for the desert tortoise, a federally listed species, and several migratory bird species. However, Mojave creosote bush scrub habitat is relatively abundant on a local and regional scale. The Bureau of Land Management (BLM) protects a large portion of existing Mojave creosote bush scrub in the vicinity of the project site, including property adjacent to the Barstow site, through public ownership. No USFWS designated critical habitat is located within the Barstow site. As no destruction of critical habitat would occur, no adverse effects to habitats would result from the development of Alternative A.

Waters of the U.S.

No potentially jurisdictional drainages or wetlands are located within the Barstow site. Development of Alternative A would have no impacts to wetlands or waters of the U.S.

State Listed Species

Impacts to western burrowing owl (*Athene cunicularia*), Le Conte's thrasher (*Toxostoma lecontei*), and Mojave ground squirrel (*Spermophilus mohavensis*) were assessed, as these state listed species have the potential to occur on or in the immediate vicinity of the Barstow site.

The burrowing owl has a high tolerance for non-threatening human activity and may occur on the edge of developed areas. As the project site is located adjacent to existing development to the north and west and open space to the south and east, development of Alternative A would not result in significant adverse impacts to western burrowing owl. While habitat for the Le Conte's thrasher exists on and in the immediate vicinity of the Barstow site, it is unlikely that this species occurs due to the high level of human activity already occurring in the area. Should Le Conte's thrasher occur on or in the immediate vicinity of the Barstow site, then light and noise associated with construction and operation of Alternative A may cause the bird to relocate to less disturbed habitats. Therefore, Alternative A would not result in significant adverse effects to Le Conte's thrasher. Recommended mitigation measures presented in **Section 5.4** for nesting birds would further reduce or eliminate all potential adverse effects to western burrowing owl and Le Conte's thrasher.

Mojave ground squirrel has the potential to occur on or in the vicinity of the Barstow site. While this species has been known to occur on the edge of human development near Barstow, this species typically occurs within habitats that have minimal human activity. Development of Alternative A would reduce the amount of undisturbed habitat available to this species. However abundant undisturbed habitat exists to the south and to the east of the Barstow site. As such, development of Alternative A would not result in significant adverse effects on the Mojave ground squirrel.

Federally Listed Species

Pursuant to the requirements of the Federal Endangered Species Act (FESA) of 1973, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the study area and determine whether the proposed project would have a potentially "significant" impact upon such species. Under FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is proposed for listing under FESA or to result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). The USFWS and the National Marine Fisheries Service (NMFS) enforce the provisions as stipulated within the FESA (16 USC Section 1531 *et seq*.). Threatened and endangered species on the federal list (50 CFR Subsection 17.11, 17.12) are protected from "take" (direct or indirect harm), unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered to a lead federal agency.

As discussed in **Subsection 3.5.4**, one federally listed species has the potential to occur on the Barstow site: the Mojave desert tortoise (*Gopherus agassizii*). In addition to the desert tortoise, there are 15 other federally listed species known to occur in San Bernardino County. None of these other federal special-status species are likely to occur within the Barstow site because it is either outside of the species' range or because it does not provide suitable habitat. The desert tortoise is known to utilize Mojave creosote bush scrub habitats that are similar to those present within the Barstow site and immediate vicinity Although Mojave creosote bush scrub provides habitat for the Mojave desert tortoise, the habitat is of low quality on-site because of several dirt roads crisscrossing the site and the urban land uses and barriers to overland movement surrounding the project site including Lenwood Road, an outlet mall, developed areas within the City of Barstow to the west and north, and the Stoddard Valley OHV area, which is heavily

used by off-road vehicle traffic, to the south and east. The highways located to the north and west of the project site are likely barriers to Mojave desert tortoise movement. No Mojave desert tortoises or their signs were observed during the March 30, 2012 protocol survey conducted within the project site (**Appendix T** of the Final EIS/TEIR). Given that the site is highly disturbed and the land uses surrounding the project site consist of OHV use, paved roads, and commercial development, and that no Mojave desert tortoise or their sign was observed during the biological surveys, this species is unlikely to occur within the project site. However, should this species occur within the Barstow site, construction activities in and around the Mojave creosote bush scrub habitat have the potential to adversely affect this species. Mortality or injury to this species could result from construction vehicle movement, ground disturbance, or other project-related activities. In addition, this species may use construction vehicles and/or equipment as nighttime shelter, which may result in mortality or injury to the species.

Construction of Alternative A would likely result in increased human activity in the vicinity of the Barstow site. Such an increase in human activity could result in an increase of trash and food waste, which has been known to attract the common raven (*Corvus corax*). Increased raven populations could adversely affect the desert tortoise because ravens prey on juvenile desert tortoises. Recommended mitigation measures presented in **Section 5.4** would avoid or minimize any potential adverse effects to desert tortoise. With the incorporation the recommended mitigation measures, Alternative A may affect, but is **not likely to adversely affect** the desert tortoise. In accordance with Section 7 of the FESA, the BIA initiated consultation with USFWS regarding potential effects to the desert tortoise. In a letter dated July 6, 2012, the USFWS concurred that the Proposed Action is not likely to adversely affect the desert tortoise with the implementation of mitigation measures in Section 5.4. Consultation letters are provided in **Appendix T** of this Final EIS/TEIR.

Migratory Birds

Under the Migratory Bird Treaty Act of 1918 (16 USC Section 703-712), migratory bird species and their nests and eggs, which are on the federal list (50 CFR Section 10.13) are protected from injury or death. Accordingly, project-related disturbances must be reduced or eliminated during the nesting cycle.

Several migratory birds, such as Le Conte's thrasher (*Toxostoma lecontei*), lesser nighthawk (*Chordeiles acutipennis*), killdeer (*Charadrius vociferous*), and western burrowing owl (*Athene cunicularia*), have the potential to nest in low-growing vegetation or on the sand within the Barstow site. If construction activities (e.g., vegetation removal, grading, etc.) associated with project development occur during the nesting season, migratory and/or nesting bird species such as those mentioned above could be adversely impacted. Disturbance that occurs within 500 feet of an active nest could cause nest abandonment or premature fledging of the young. Recommended mitigation measures presented in **Section 5.4** would minimize the potential for adverse effects to occur. After mitigation, Alternative A would not result in significant adverse effects to nesting migratory birds.

4.4.2 ALTERNATIVE B – BARSTOW REDUCED CASINO- HOTEL COMPLEX

Habitats

Alternative B would disturb a majority of the Barstow site and would impact most of the Mojave creosote bush scrub habitat within the site boundaries. No USFWS designated critical habitat occurs on the Barstow site. Similar to Alternative A, no adverse or significant effects to habitats would occur as a result of Alternative B.

Waters of the U.S.

As with Alternative A, development of Alternative B would have no adverse effects on waters of the U.S. or wetlands.

Federal and State Listed Species

Effects on federally and state listed species associated with development of Alternative B are similar to those identified for Alternative A. Similar to Alternative A, development of Alternative B has the potential to result in adverse effects to desert tortoise. Recommended mitigation measures presented in **Section 5.4** would avoid or minimize all identified adverse effects to desert tortoise. With the incorporation the recommended mitigation measures, Alternative B may affect, but is **not likely to adversely affect** the desert tortoise. In accordance with Section 7 of the FESA, the BIA initiated consultation with USFWS regarding potential effects to the desert tortoise. In a letter dated July 6, 2012, the USFWS concurred that the Proposed Action is not likely to adversely affect the desert tortoise with the implementation of mitigation measures in Section 5.4. Consultation letters are provided in **Appendix T** of this Final EIS/TEIR.

Migratory Birds

Potential impacts of Alternative B to migratory bird species are similar to the potential impacts identified under Alternative A. Recommended mitigation measures in **Section 5.4** would minimize the potential adverse effects to nesting migratory bird species. After mitigation, Alternative B would not result in significant adverse effects to nesting migratory birds.

4.4.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Habitats

No USFWS designated critical habitat is located within the Los Coyotes site. As such, no adverse effects to habitats would occur because there is no destruction of critical habitat. Alternative C would affect approximately 9.93 acres of non-native grassland habitat and 4.88 acres of Coast live oak woodland habitat. Potential impacts to the Coast live oak woodland habitat would be minimal due to the relatively common and abundant nature of this habitat type in the region. The non-native grassland habitat on-site provides potentially suitable habitat for Stephen's kangaroo rat, a federally listed species. Potential project-related effects on Stephen's kangaroo rat are discussed below.

Waters of the U.S.

A seasonal wetland occurs in the southern portion of the Los Coyotes site and San Ysidro Creek, an intermittent channel, flows immediately to the west of the Los Coyotes site. For the purposes of this analysis, San Ysidro Creek is considered to be potentially jurisdictional waters of the U.S. Since this area is outside the area of development, significant adverse effects to waters of the U.S. would not occur. Regulatory requirements and best management practices (BMPs) related to water resources presented in **Section 5.2** would further reduce any adverse effects.

A formal wetland delineation and verification by the U.S. Army Corps of Engineers (USACE) would be required to determine the jurisdictional status of the seasonal wetland at the southern edge of the Los Coyotes site. If this feature is determined to be jurisdictional, Alternative C could have an adverse effect on waters of the U.S. because of project-related impacts to this seasonal wetland feature. Implementation of the recommended mitigation measures in **Section 5.4** would minimize all adverse effects to wetlands and waters of the U.S.

State Listed Species

Due to the location of the Los Coyotes site within the Los Coyotes Reservation, off-reservation impacts to state listed species would likely not occur.

Federally listed Species

Special Status Amphibian Species

Breeding habitat for the arroyo toad (*Bufo californicus*) does not occur west of the Los Coyotes site, within San Ysidro Creek, as the channel does not have persistent water flows or pools in this area. However, potential breeding habitat does occur within small pools in the San Ysidro Creek south of the Los Coyotes site, and in wetland areas in the southern portion of the Los Coyotes site, and immediately south of the Los Coyotes site. This species was not observed on-site during the field assessments conducted by AES in May 2006. Alternative C has the potential to impact this species if the arroyo toad occurs within these two potential habitat areas, as arroyo toads can travel up to a kilometer from their breeding sites during the nonbreeding season. Regulatory requirements and BMPs related to water resources presented in **Section 5.2** and implementation of the recommended mitigation measures presented in **Section 5.4** would minimize adverse effects to waters of the U.S. as well as to the arroyo toad. With the incorporation the recommended mitigation measures, Alternative C may affect, but is not likely to adversely affect the arroyo toad.

Special Status Mammal Species

While Stephen's kangaroo rat (*Dipodomys stephensi*) was not observed on-site during the field assessment, this species is typically nocturnal and the Los Coyotes site was surveyed during the day. Development of Alternative C could impact this species by removal of habitat and take of the species during construction, if it occurs on-site. Development of Alternative C may have adverse effects on Stephen's kangaroo rat. The aspects of overall project design and implementation of the recommended mitigation measures presented in **Section 5.4** would minimize adverse effects to Stephen's kangaroo rat.

Migratory Birds

Development of Alternative C could affect vegetative communities that may potentially support active nests of migratory birds, such as western bluebird (*Sialia mexicana*), lesser nighthawk (*Chordeiles acutipennis*), Anna's hummingbird (*Calypte anna*), and lark sparrow (*Chondestes grammacus*). Development of Alternative C may have adverse effects on nesting migratory birds, should vegetation removal activities associated with project development occur during the nesting season. The aspects of overall project design and implementation of the recommended mitigation measures in **Section 5.4** would minimize adverse effects to nesting migratory bird species.

4.4.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Habitats

No USFWS designated critical habitat is located within the Los Coyotes site. As such, no adverse effects to habitats would occur because there would be no destruction of critical habitat. Development of Alternative D would impact non-native grassland habitat and Coast live oak woodland habitat. These habitat impacts are similar to, but reduced, to those described for Alternative C.

Waters of the U.S.

Potential effects of Alternative D to waters of the U.S. and wetland features are similar to those previously discussed for Alternative C. Regulatory requirements and BMPs related to water resources, as presented in **Section 5.2** above, would minimize adverse effects to San Ysidro Creek. Mitigation in **Section 5.4** would minimize adverse effects to identified wetland features.

Federal and State Listed Species

Development of Alternative D would have similar effects on federally and state listed species to those previously discussed for development of Alternative C. The aspects of overall project design and implementation of the recommended mitigation measures in **Section 5.4** would minimize all identified adverse effects to state and federally listed special-status species.

Migratory Birds

Potential impacts to nesting migratory bird species resulting from development of Alternative D are similar to potential impacts discussed for Alternative C. The aspects of overall project design and implementation of the recommended mitigation measures in **Section 5.4** would minimize all identified adverse effects to nesting migratory birds.

4.4.5 ALTERNATIVE E – NO ACTION

Under Alternative E, no changes in land use on the Barstow and Los Coyotes sites are reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section identifies the direct effects to cultural resources that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.5**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.5**.

Assessment Criteria

For cultural resources, adverse effects would result if either construction or operation would result in one of the following impacts to cultural resources that are listed, or eligible for listing, in the National Register of Historic Places (NRHP): physical destruction of or damage to all or part of the resource; alteration of a resource; removal of the resource from its historic location; change of the character of the resource's use or of physical features within the resource's setting that contribute to its historic significance; introduction of visual, atmospheric, or audible elements that diminish the integrity of the resource's significant historic features; and neglect of a resource that causes its deterioration. A Cultural Resources Report (**Appendix N** of the Draft EIS/TEIR) has been prepared and was submitted to the State Historic Preservation Officer (SHPO) to initiate consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA). In a letter dated June 5 2012, the SHPO concurred with the BIA's finding of *No Historic Property Affected* for the Barstow site. A copy of the consultation letters is provided in **Appendix R** of the Final EIS/TEIR. The findings of the report are summarized below.

4.5.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Cultural Resources

No previously known archaeological or historical resources were identified as a result of the archival research, consultation, or field survey. Therefore, development proposed under Alternative A would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative A has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative A.

Paleontological Resources

No paleontological resources have been reported or observed on or in the vicinity of the Barstow site. Therefore, no known paleontological resources would be affected under Alternative A.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative A has the potential to cause adverse effects

to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative A.

4.5.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Cultural Resources

No previously known archaeological or historical resources were identified as a result of archival research, field survey, or consultation. Therefore, development proposed under Alternative B would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative B has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative B.

Paleontological Resources

As stated under Alternative A, no paleontological resources have been reported or observed on or in the vicinity of the Barstow site. Therefore, no known paleontological resources would be affected under Alternative B.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative B has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative B.

4.5.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Cultural Resources

No archaeological or historical resources were identified as a result of the archival research, consultation, or field survey. Therefore, development proposed under Alternative C would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative C has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative C.

Paleontological Resources

No paleontological resources have been reported or observed on or in the vicinity of the Los Coyotes site. Therefore, no known paleontological resources would be affected under Alternative C.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative C has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative C.

4.5.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Cultural Resources

No archaeological or historical resources were identified as a result of the archival research, consultation, or field survey. Therefore, development proposed under Alternative D would not affect known historic properties.

There is a possibility that previously unknown archaeological resources would be encountered during construction activities. Therefore, development of Alternative D has the potential to cause adverse effects to unidentified subsurface archaeological resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to previously unknown archaeological resources from Alternative D.

Paleontological Resources

As stated under Alternative C, no paleontological resources have been reported or observed on or in the vicinity of the Los Coyotes site. Therefore, no known paleontological resources would be affected under Alternative D.

There is a possibility that previously unknown paleontological resources would be encountered during construction activities. Therefore, development of Alternative D has the potential to cause adverse effects to unidentified subsurface fossil resources. Recommended measures presented in **Section 5.5** would minimize the potential for adverse impacts to unidentified subsurface fossil resources from Alternative D.

4.5.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potential adverse effects identified for Alternatives A though D are anticipated to occur.

4.6 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

This section identifies the effects to socioeconomics anticipated to result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.6**. Cumulative and specific indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to avoid, minimize, and mitigate for adverse effects identified in this section are presented in **Section 5.6**.

Assessment Criteria

Socioeconomic Impacts

To determine the potential effects of the alternatives associated with socioeconomic conditions, the economic effects of temporary construction and ongoing operational activities of each alternative were measured. Because socioeconomic effects would be most pronounced in the vicinity of the Project sites, the scope of analysis focuses on impacts to the Barstow site and surrounding San Bernardino County for Alternatives A and B, and the Los Coyotes Reservation and surrounding San Diego County for Alternatives C and D. Impacts from construction would be a one-time occurrence, while those from operation would be generated continuously after opening. An adverse economic, fiscal, or social impact would occur if the effect of the project were to negatively alter the ability of businesses and governments to perform at existing levels, or alter the ability of people to obtain public health and safety services. Much of the analysis presented herein relies on data presented in the *Los Coyotes Band of Cahuilla and Cupeño Indians Fee-to-Trust and Barstow Casino Project – Economic Impact and Growth Inducing Study* (Economic Impact Study) included as **Appendix O** of the Draft EIS/TEIR (AES, 2010). Economic effects in this analysis are quantified for San Bernardino County and San Diego County using the Impact Analysis for Planning (IMPLAN) model.

Environmental Justice Impacts

To determine the impacts of the alternatives on environmental justice, the location and status of minority and low-income communities of concern, as identified in **Section 3.6**, are compared to the effect and nature of an alternative's impacts. An adverse environmental justice impact would result if any impact within the scope of this document disproportionately affected an identified minority or low-income community or Native American tribe. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* provides the following direction on how to analyze the impacts of actions on low-income and minority populations:

> Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population (EPA, 1998).

4.6.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Economic Effects

Expenditures on goods and services for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output. Direct output would result from money spent on activities for construction and operational activities of the project. Indirect output would result from expenditures on goods and services by businesses that receive funds directly from the construction and operation of Alternative A. Induced output would result from expenditures on goods and services by employees directly generated from construction and operation of Alternative A.

Construction

Expenditures on goods and services from the construction of Alternative A were calculated from estimated costs for construction, investment in furniture, fixture and equipment (FF&E), various business and consulting fees, and pre-opening expenses. It is assumed that the construction of Alternative A would start in January 2012 and finish in March 2013. Under Alternative A, construction activities are estimated to cost approximately $251.4 million, which is expected to generate a one-time total output of approximately $220.5 million within the County (**Table 4.6-1**). Direct output is estimated to total approximately $161.5 million, of which approximately $157.9 million (98 percent) is attributed to the construction industry. Indirect and induced outputs were estimated to total $22 million and $36.9 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Construction of Alternative A would generate substantial output to a variety of businesses in San Bernardino County. Given the location of Alternative A in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Operation

Expenditures on goods and services from the operation of Alternative A were calculated from revenue projections for the first complete year of operation, currently estimated to be 2014. Under Alternative A, the projected revenue for 2014 was estimated to be $158.2 million and the estimated annual number of patrons would be 2,285,364 (Michigan Consultants, 2010). New spending from the proposed project is expected to generate a net annual total output of approximately $183.5 million within the County (**Table 4.6-2**). Direct output is estimated to total approximately $141.7 million, of which approximately $119.9 million (85 percent) would be attributed to the gaming and entertainment industry. Indirect and induced outputs were estimated to total $23.2 million and $18.6 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

TABLE 4.6-1
ONE-TIME CONSTRUCTION ECONOMIC IMPACT (MILLIONS)

Construction	Alternative			
	A	B	C	D
Development Budget	*$251.4*	*$182.9*	*$9.0*	*$2.4*
Direct Output (Industry)				
Construction	$157.9	$114.7	$3.0	$1.60
Manufacturing	-	-	$0.27*	$0.04
Wholesale Trade	$2.3	$1.7	$0.59	-
Real Estate and Rental	$1.17	$1.17	-	-
Professional: Scientific and Technical Services	-	-	$0.16	-
Direct Total	$161.5	$117.6	$4.38	$1.64
Other Output				
Indirect	$22.0	$16.0	$1.48	$0.54
Induced	$36.9	$26.9	$1.78	$0.67
Total Output	*$220.5*	*$160.5*	*$7.64*	*$2.86*

Source: AES, 2010.
Projections are presented in 2010 dollars
* Includes Mining sector for road construction materials.
Note: Though numbers appear to be estimated to the nearest dollar, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

TABLE 4.6-2
ANNUAL OPERATIONAL ECONOMIC IMPACT (MILLIONS)

Operation	Alternative			
	A	B	C	D
Revenue (Projected 2014)	*$158.2*	*$126.4*	*$9.3*	*$0.68*
Direct Output (Industry)				
Entertainment & Recreation	$119.9	$97.5	$7.0	-
Accommodation & Food Services	$21.7	$7.6	$1.2	$0.60
Direct Total	$141.7	$105.0	$8.2	$0.60
Other Output				
Indirect	$23.2	$17.5	$3.6	$0.23
Induced	$18.6	$13.3	$2.4	$0.21
Total Output	*$183.5*	*$135.8*	*$14.2*	*$1.1*

Source: Michigan Consultants, 2010; AES, 2010
Projections are presented in 2010 dollars
Note: Though numbers appear to be estimated to the nearest dollar, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

Operation of Alternative A would generate substantial output to a variety of businesses in San Bernardino County. Given the location of Alternative A in Barstow, the local economy of Barstow, as discussed in

Subsection 3.6.1, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Substitution Effects

Potential substitution effects (the loss of customers at existing commercial businesses to the new business) of Tribal casinos on existing restaurant, recreation, and retail establishments must be considered when attempting to determine the true magnitude of the casino's impact on the economy. These effects were evaluated in the Economic Impact and Growth Inducing Study (**Appendix O** of the Draft EIS/TEIR). As noted in **Section 3.6**, the potential market for the Barstow casino can be divided into two major sources: close-radius residents and long-distance travelers. The close-radius market consists of individuals who reside in areas where Barstow will either be the closest casino or one of the closer casinos. The long-distance market consists of vehicles on Interstate 15 traveling to Las Vegas, as well as travelers that fork onto Interstate 40 east of Barstow going towards Arizona. The primary market opportunity for the Barstow site is the large number of travelers that currently pass through Barstow on I-15 each year.

The magnitude of the substitution effect can generally be expected to vary greatly by specific location and according to a number of variables. That is, how much of the casino's revenue comes at the expense of other business establishments in the area depends on how many and what type of other establishments are within the same market area as the casino, disposable income levels of local residents and their spending habits, as well as other economic and psychological factors affecting the consumption decisions of local residents. As estimated by Michigan Consultants, the anticipated gaming revenue substitution effect under Alternative A would be approximately 15.4 percent of total projected gaming revenue for the project ($20,864,893). However, this effect would not result in the closure of any of the competing gaming facilities. In fact, it is likely that existing regional casinos would continue to generate significantly positive cash flows. Moreover, any anticipated substitution effects are likely to diminish after the first year of the project's operation and once local residents experience the casino and return to more typical spending patterns. It is important to note that the addition of a casino in San Bernardino County would be likely to expand the gaming market for the region as a whole.

According to a 2000 Harvard University study, worst-case non-gaming substitution effects, occurring in rural environments, have shown on average a nine percent decrease in earnings at local restaurants and bars and an increase in earnings in other commercial sectors (Taylor et al., 2000). According to official U.S. Census Bureau definitions, rural areas comprise open country and settlements with fewer than 2,500 residents (USDA, 2007). In January 2010, the City of Barstow had a population of 24,281 people, which is significantly higher than the U.S. Census Bureau's definition of a rural community (DOF, 2010). Thus, worst case effects as described in the Harvard study would not apply to the Barstow site. Therefore, it may be inferred that if substitution occurs it would be at some percentage lower than nine percent. Given that it is not possible to reliably quantify the substitution effects, this analysis does not reduce the economic impacts from the proposed casino and other alternatives to account for substitution effects. Some of the substitution effects would be counteracted by the behavior of casino guests other than local residents. Specifically, as the casino would draw non-residents to the area, the associated increase in new

visitor demand for off-site entertainment venues, restaurants, and bars would make up for some area residents choosing to visit Alternative A rather than other local establishments. Thus, it is not anticipated that significant substitution effects would occur.

Taxes

Alternative A would result in a variety of fiscal impacts. Since tribes are sovereign nations, they do not pay corporate income taxes on revenue or property taxes on tribal land. Alternative A would increase demand for public services, resulting in increased costs for local governments to provide these services. Tax revenues would be generated for federal, state and local governments from activities including secondary economic activity generated by tribal gaming (i.e., the indirect and induced effects of the economic impact analysis). The taxes on secondary economic activity include: corporate profits tax, income tax, sales tax, excise tax, property tax, and personal non-taxes, such as motor vehicle licensing fees, fishing/hunting license fees, other fees, and fines. Additionally, the gaming compact will provide for revenue sharing between the Tribe and the State, as well as local governments.

Property values assessed by San Bernardino County for parcels within the Barstow site are discussed in **Subsection 3.6.1**. Alternative A would result in the entire area of each of these parcels being transferred to trust status for the Tribe. Therefore, approximately $6,634 in property taxes would be lost by local governments including San Bernardino County and the city of Barstow. The MSA (**Appendix D** of the Draft EIS/TEIR) provides for compensation by the Tribe to Barstow. The Tribe would pay Barstow amounts equal to the service, development, and impact fees that, if the Barstow site were not in trust status, would be charged by Barstow and other local agencies.

As shown in **Table 4.6-3**, substantial tax revenues would be generated for federal, state and local governments from economic activity associated with construction and operation of Alternative A. Local governments include San Bernardino County, Barstow, and other cities within San Bernardino County that would experience economic activity as a result of Alternative A. Construction of Alternative A would generate one-time $13.3 million in federal tax revenues, and $7.5 million in state/county/local tax revenues. Operation of Alternative A would generate annually $3.4 million in federal tax revenues, and $2.7 million in state/county/local tax revenues from indirect and induced taxes. Actual annual tax revenues generated by the project may be greater than those indicated above as direct personal income tax is not accounted for in the operational tax revenue estimate.

Additionally, Alternative A would generate substantial annual revenues to state and local governments from revenue sharing. The MSA provides for compensation by the Tribe to Barstow in the amount of 4.3 percent of the “Net Win” on Class II and Class III electronic games of chance. As detailed in **Appendix O** of the Draft EIS/TEIR, Alternative A would have an estimated annual gaming machine revenue of $121.9 million, resulting in Barstow revenue sharing of $5.3 million per year. Additional payments to Barstow for problem gambling services would total $40,000, and are discussed in the MSA (**Appendix D** of the Draft EIS/TEIR) as well as below in the pathological and problem gambling section.

TABLE 4.6-3
TAX REVENUES (MILLIONS)

Jurisdiction	Alternative			
	A	B	C	D
Construction (One-Time)				
Federal	$13.3	$9.7	$0.61	$0.22
State/County/Local	$7.5	$5.5	$0.42	$0.13
Operation (Annually)				
Federal	$3.4	$2.1	$0.48	$0.04
State/County/Local	$2.7	$2.0	$0.40	$0.03

Source: AES, 2010
Projections are presented in 2010 dollars.
Note: Though numbers appear to be estimated to the nearest dollar, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total. The operational tax revenues indicated in the table include indirect and induced taxes only. Due to the project's unique circumstances, including the proposed location on trust land, direct tax revenues generated during the project's operation phase were not quantifiable. As such, actual tax revenues generated by the project may be greater than those indicated above as direct personal income tax has not been included in the totals.

Effects due to the loss of state and federal tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased local, state and federal tax revenues resulting from construction and operation of Alternative A, and from revenue sharing programs per the tribal compact and the MSA. To ensure revenue sharing between the Tribe and Barstow, provisions of the MSA are included in **Section 5.6**. The net generation of revenues to governments is considered a beneficial impact.

Summary of Economic Effects

Construction and operation of Alternative A would generate substantial economic output to a variety of businesses in San Bernardino County. Given the location of Alternative A in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Additionally, Alternative A would generate substantial fiscal impacts to state, County, and local governments. Potential effects due to the loss of state and federal tax revenues resulting from the operation as a sovereign nation on trust land would be offset by increased local, state and federal tax revenues resulting from construction and operation of Alternative A, and from revenue sharing programs per the tribal compact and the MSA. Overall, Alternative A would result in a beneficial impact to the San Bernardino County economy.

Employment

Investment in construction and operational activities would generate substantial direct employment opportunities and wages, as well as indirect and induced employment opportunities and wages. The source of direct, indirect, and induced employment opportunities and wages would be similar to those for economic output, as discussed above. The IMPLAN model was used to estimate employment opportunities generated by Alternative A.

Construction

Under Alternative A, investment in construction activities would generate a one-time total of approximately 1,467 employment opportunities within the County (**Table 4.6-4**). The number of employees would be equivalent to the number of person-years available from wages. A person-year is defined as the amount of labor one full-time employee can complete in a calendar year. For example, two half-time employees working for a year would constitute one person-year. Direct output was estimated to total approximately 990 employment opportunities, of which approximately 968 (97 percent) would be attributed to the construction industry. Indirect and induced employment opportunities were estimated to result in 165 and 331 employment opportunities, respectively.

TABLE 4.6-4
ONE-TIME CONSTRUCTION EMPLOYMENT AND WAGE IMPACTS

Construction Impact	Alternative			
	A	B	C	D
Employment (Person-Years)				
Direct (Industry)				
Construction	968	703	20	10
Manufacturing	-	-	1*	0
Wholesale Trade	15	11	3	-
Real Estate and Rental	7	7	-	-
Professional: Scientific and Technical Services	-	-	1	-
Direct Total	990	721	26	10
Other				
Indirect	165	120	9	3
Induced	331	226	13	5
Total Jobs	*1,467*	*1,068*	*47*	*18*
Wages (Millions)				
Direct (Industry)				
Construction	$43.7	$31.7	$0.94	$0.472
Manufacturing	-	-	$0.05*	$0.005
Wholesale Trade	$0.85	$0.62	$0.208	-
Real Estate and Rental	$0.06	$0.06	-	-
Professional: Scientific and Technical Services	-	-	$0.08	-
Direct Total	$44.6	$32.4	$1.27	$0.477
Other				
Indirect	$7.0	$5.1	$0.46	$0.169
Induced	$10.5	$7.6	$0.49	$0.184
Total Wages	*$62.1*	*$45.1*	*$2.22*	*$0.831*

Source: AES, 2010; Projections are presented in 2010 dollars
* Includes Mining sector for road construction materials.
Note: Though numbers appear to be estimated to the nearest dollar and/or whole number, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

Employment opportunities generated from construction and operation of Alternative A would result in wage generation. Wage totals include hourly and salary payments as well as benefits including health and life insurance and retirement payments. Under Alternative A, investment in construction activities would generate one-time total wages of approximately $62.1 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $44.6 million, of which approximately $43.7 million (98 percent) would be attributed to the construction industry. The generation of employment and wages during the construction phase is considered a beneficial effect of Alternative A.

Operation

Employment opportunities generated from the operation of Alternative A would include entry-level, mid-level, and management positions. Examples of employment opportunities typically offered by tribal casino and resort facilities are listed in **Table 4.6-5**. Average salaries offered are expected to be consistent with, or greater than, those of other tribal gaming facilities, and competitive in the local labor market.

TABLE 4.6-5
TYPICAL TRIBAL CASINO EMPLOYMENT OPPORTUNITIES

Casino slot operations	Hotel management	Food & beverage operations	Financial services
Table games	Hotel facilities	Restaurant services	Support services
Entertainment operations	Hotel marketing	Culinary services	Security services
Casino credit	Housekeeping services	Human resources	Surveillance
Casino administration	Hotel administration	Casino services	Hotel services
Source: AES, 2010.			

As calculated through IMPLAN, operation activities associated with Alternative A would generate an annual total of approximately 1,562 employment opportunities to be captured within San Bernardino County (**Table 4.6-6**). Direct employment impacts were estimated to total approximately 1,207 job opportunities (**Appendix O** of the Draft EIS/TEIR). Indirect and induced employment opportunities were estimated to total 198 and 157, respectively, and would be dispersed and distributed among a variety of different industries and businesses throughout San Bernardino County.

Under Alternative A, operation activities associated with Alternative A would generate annual total wages of approximately $39.7 million within San Bernardino County (**Table 4.6-6**). Direct wages were estimated to total approximately $26.7 million, of which approximately $19.9 million (75 percent) would be attributed to the gaming and entertainment industry. Indirect and induced wages were estimated to total $7.7 and $5.3 million, respectively, and would be dispersed and distributed among a variety of different industries and businesses throughout San Bernardino County. The generation of employment and wages during the operation phase is considered a beneficial effect of Alternative A.

For the purposes of this analysis, it is assumed that the unemployment rate for San Bernardino County will follow a similar trend to what has been projected for the U.S. as described in **Section 3.6**, and that the County will experience an unemployment rate of 10.2 percent in 2014 and a labor force of 931,086 people (**Appendix O** of the Draft EIS/TEIR; **Table 4.6-7**).

TABLE 4.6-6
ANNUAL OPERATIONAL EMPLOYMENT AND WAGE IMPACTS

Operational Impact	Alternative			
	A	B	C	D
Employment (Person-Years)				
Direct (Industry)				
Entertainment and Recreation	870	707	48	6
Accommodation and Food Services	337	116	20	-
Direct Total	1,207	823	68	6
Other				
Indirect	198	150	23	2
Induced	157	112	17	2
Total Jobs	*1,562*	*1,085*	*108*	*9*
Wages (Millions)				
Direct (Industry)				
Entertainment and Recreation	$19.9	$16.2	$1.34	$0.185
Accommodation and Food Services	$6.8	$2.4	$0.39	-
Direct Total	$26.7	$18.5	$1.74	$0.185
Other				
Indirect	$7.7	$5.9	$0.02	$0.07
Induced	$5.3	$5.8	$0.02	$0.06
Total Wages	*$39.7*	*$28.2*	*$0.1*	*$0.314*

Source: AES, 2010
Projections are presented in 2010 dollars.
Note: Though numbers appear to be estimated to the nearest dollar and/or whole number, accuracy is not indicated to that level due to rounding. Due to rounding, numbers may not add up to equal the number given in the Total.

TABLE 4.6-7
PROJECTED SAN BERNARDINO COUNTY LABOR MARKET

2014	
Labor Force	931,086
Unemployment (Rate)	94,971 (10.2%)

Source: AES, 2010.
Note: 2014 Labor market considers direct, indirect, and induced employment.

A portion of new employment opportunities would be filled by people in the County that are currently employed, thereby freeing up existing employment opportunities for other workers. For reasons described above under *Economic Effects*, Alternative A is not expected to result in significant permanent job loss elsewhere due to substitution effects.

Summary of Employment Effects

Construction and operation of Alternative A would generate substantial temporary and ongoing employment opportunities and wages that would be primarily filled by the available labor force in Barstow and San Bernardino County. Given the projected unemployment rate, and the dynamics of the local labor market, San Bernardino County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative A. This would result in employment and wages for persons previously unemployed, increasing the ability of the population to provide themselves with health and safety services and contributing to the alleviation of poverty among lower income households. Additionally, in accordance with Section 10 of the MSA, the Tribe shall work in good faith with the City to employ qualified City residents at the Tribe's resort facilities, as well as offer training programs to assist City residents in becoming qualified for positions at the Resort (**Section 5.6**). This is considered a beneficial effect.

Housing

Based on the information presented in **Section 3.6.1**, in 2014, the San Bernardino County housing market is projected to have 734,831 total units and 84,212 vacant units; the Barstow housing market is projected to have 10,656 total units and 1,852 vacant units (**Table 4.6-8**).

TABLE 4.6-8
PROJECTED 2014 HOUSING MARKET

San Bernardino County	Housing Units
Total Units	734,831
Occupied Units	650,619
Vacant Units	84,212
% Vacant	11.46%
City of Barstow	**Housing Units**
Units	10,656
Occupied Units	8,804
Vacant Units	1,852
% Vacant	17.38%
Source: California Department of Finance, 2010; AES, 2010.	

Indirect and induced employment opportunities would be dispersed among a variety of different businesses in San Bernardino County. Since these opportunities would be located at a variety of locations throughout San Bernardino County, it is expected that employees would be located in the vicinity of these locations, and would not require relocation.

Based on regional housing stock projections, and current trends in San Bernardino County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative A. Therefore, Alternative A is not expected to

stimulate regional housing development. A significant adverse impact to the housing market would not occur. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

Social Impacts

Pathological and Problem Gambling

Gambling, in one form or another, is now legal in every state except Hawaii and Utah. According to an NGISC study, approximately 86 percent of Americans report having gambled at least once during their lifetimes and 63 percent of Americans report having gambled at least once during the previous year (NGISC, 1999). This estimate is based on participation in all forms of gambling, including: lotteries, poker, Internet gambling, betting, and casino gambling.

As described in **Table 4.6-9** there are behaviors of casino customers that can be broken down into five categories. Gaming customers are motivated to visit a casino for a variety of reasons, and some of those reasons may be viewed as criteria that define one as a problem gambler.

TABLE 4.6-9
FIVE BEHAVIORS OF CASINO CUSTOMERS

Behavior Type	Characteristics
Recognition Seekers	Small share of total players. Have high expectation of recognition from the property they patronize. The reward to the casino is an intensely loyal and frequent visitor.
Escapists	Seeks a getaway that does not resemble their everyday routine. Prefer to remain anonymous. Require minimal maintenance in the form of personal attention and complimentary services from the casino.
Reward Seekers	Driven by casino's play rewards program or promotions that compensate them for their play. Gamer will play at the casino with the best deal.
Socializers	Visit a casino to be around others. Once they identify with a particular property they become very loyal with high levels of visitation.
Professionals	Pay very close attention to the types of games a casino offers. Generate large coin handle and accumulate voluminous amounts of slot club points. Loyalty goes to the casino where they can make the most money.
Source: AES, 2010.	

The American Psychiatric Association (APA) describes pathological gambling as an impulse control disorder characterized by "persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits. The gambling pattern may be regular or episodic, and the course of the disorder is typically chronic" (NGISC, 1999). The APA has established ten criteria for diagnosis of a pathological and problem gambler, which include: preoccupation, tolerance, withdrawal, escape, chasing, lying, loss of control, illegal acts, risked significant relationship, and financial bailout. At-risk gaming behaviors typically meet one or two of these criteria; problem gamblers typically meet three to four of these criteria; and pathological gamblers typically meet at least five of these criteria. Collectively, both pathological and problem gambling are referred to as "problem gambling."

An NGISC study reported on three studies, two completed in 1997 and one completed in 1998 that estimate the percentage of American adults classified as pathological gamblers ranged from 1.2 to 1.6

percent (NGISC, 1999). The NGISC noted that pathological gambling often occurs in conjunction with other behavioral problems, including substance abuse, mood disorders, and personality disorders. Even if it were possible to isolate the effects of problem gambling on people who suffer from co-morbidity, it is difficult to then isolate the effects of casino gambling from other forms of gambling. As discussed, casino gambling is only one form of gambling. In fact, the most prevalent forms of gambling are those found in most neighborhoods: scratch lottery cards, lotto, and video lottery terminals.

Residents of San Bernardino County have been exposed to many forms of gambling, including destination casinos, for many years. Further, as discussed in the competition section below, the primary market for Alternative A is vehicle traffic passing through to Nevada and Arizona. An additional casino in San Bernardino County under Alternative A is not expected to substantially increase the prevalence of problem gamblers. Nonetheless, upon the City's approval of the Tribe's development plans, the Tribe has agreed in the MSA to make a one-time $40,000 contribution for the establishment of a problem gambling fund; and every year thereafter the Tribe shall make a $40,000 annual contribution to help fund local problem gambling diversion, assistance, and counseling programs (**Appendix D** of the Draft EIS/TEIR). With implementation of the Tribe's contributions as agreed upon in the MSA, no potential adverse impacts to regional problem gambling would occur.

Crime

There is a general belief that the introduction of legalized gambling into a community increases crime. However, this argument is based more on anecdotal evidence rather than empirical evidence. Casinos, by their nature, increase the volume of people entering a given area. Whenever large volumes of people are introduced into an area, the volume of crime would also be expected to increase. This is true of any large-scale development. Taken as a whole, literature on the relationship between casino gambling and crime rates suggests that communities with casinos are as safe as communities without casinos. The National Opinion Research Center (NORC, 1999) found that insufficient data exists to quantify or determine the relationship between casino gambling within a community and crime rates.

Alternative A would introduce a large number of patrons and employees into the community on a daily basis. As a result, under Alternative A, criminal incidents would be expected to increase in the project area, particularly at the Project Site, as with any other development of this size. However, increased tax revenues resulting from Alternative A would fund expansion of law enforcement services required to accommodate planned growth. Thus, Alternative A would not result in significant adverse effects associated with crime.

Community Impacts

Public Schools

Employees that relocate to Barstow under Alternative A would increase the number of kindergarten through 12th grade students enrolled in the Barstow Unified School District (BUSD). As discussed in **Subsection 3.6.1**, enrollment in the BUSD has increased by 0.8 percent over the past decade from 6,720 students in 2000/2001 to 6,774 students in 2008/2009. The average class size in the BUSD has decreased over the past decade from 27.5 in 2000/2001 to 26.0 in 2008/2009, a 5.4 percent decrease. Based on

historical trends in BUSD enrollment and teacher employment, BUSD would have a 2013/2014 enrollment of 6,799 and a 2014/2015 enrollment of 6,804. If teacher employment rates remains consistent with past trends, the average class size in the BUSD would be 25.3 in the 2013/2014 school year, and 25.1 in the 2014/2015 school year. The portion of the Barstow population enrolled in BUSD is determined by taking the 2008/2009 BUSD enrollment and dividing by the population of Barstow as of January 1, 2009 (24,174 people), which results in a rate of 28 percent. The BUSD boundaries encompass a large expanse of unincorporated San Bernardino County, in addition to Barstow. Enrollment in the BUSD is characterized by a large population residing in neighboring unincorporated areas of San Bernardino County. As discussed in the Employment section above, given the projected unemployment rate, and the dynamics of the local labor market, San Bernardino County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative A. As such, it is not anticipated that a significant number of employees would relocate to the area to accept a position at the Project Site. Given that any anticipated new students would be distributed across all grade levels from kindergarten through the continuation school, the limited number of potential new students would be considered a nominal impact on the BUSD. The BUSD would likely collect additional tax revenue from the families of new students and would use these taxes to hire additional teachers to meet additional demand, if necessary. Therefore, potential increased enrollment would have a nominal effect on the ability of BUSD to provide education services at existing levels. Additionally, in accordance with Section 5(A) of the MSA, the Tribe shall make payments to the BUSD equal to the service, development, and impact fees which the District would receive if the parcels were not taken into trust. With implementation of the MSA, Alternative A would not result in adverse impacts to San Bernardino County public schools.

Other Public Facilities

Effects to services provided by libraries, parks, and other public amenities could result if frequented by employees or patrons from Alternative A. San Bernardino County contains approximately 30 library branches, several parks, and several other public amenities in a number of cities. Barstow contains one branch of the San Bernardino County Library system, eight parks, one public fitness center, and a community center. Due to the entertainment nature of Alternative A, it is not expected that patrons would substantially increase demand on libraries, parks, or other public amenities. As discussed in the competition section below, the primary market for Alternative A is vehicle traffic passing through to Nevada. Employees relocating to San Bernardino County for employment opportunities would demand some new usage of public facilities. As discussed in the Employment impact section, employees would be dispersed throughout the County, and effects to public facilities would be less than significant.

Environmental Justice

An environmental justice impact would result if any impact within the scope of this document disproportionately affected an identified minority or low-income community or Native American tribe. Section 3.6 identifies minority and low-income communities within the affected environment of each potential project site and casinos operated by tribes within the competitive gaming market of each alternative. This section analyzes the location and status of identified communities of concern compared to the effect and nature of project impacts, and effects to competing tribal casinos. *Final Guidance for*

Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses provides direction on how to analyze the impacts of actions on low-income and minority populations.

Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population (EPA, 1998).

Minority and Low-Income Communities

Subsection 3.6.3 surveys local populations that could be affected by development of Alternative A at the Barstow site to determine if any minority or low-income populations exist. Three minority communities in Census Tracts 94, 95, and 120 were identified. Census Tracts 94 and 95 are located northeast of the Barstow site and Census Tract 120 is located east of the Barstow site. These Census tracts are characterized predominantly by urban areas. Primary traffic impacts would occur on area highways and intersections/interchanges. Localized impacts on the Barstow site, such as various impacts to land and water resources, would not affect these Census tracts. Regional impacts, such as air quality impacts, would be distributed throughout the region. Alternative A would benefit all communities within proximity of the Barstow site by creating employment opportunities that would be primarily filled by the local labor market. These communities would not be disproportionately adversely impacted. A less than significant effect would result.

Competition

Subsection 3.6.3 identifies the three closest tribal gaming facilities as the San Manuel Indian Bingo Casino located in San Bernardino County approximately 50 miles southwest, the Morongo Casino Resort Spa located in Riverside County approximately 100 miles south, and Havasu Landing Casino located in San Bernardino County approximately 185 miles east. Alternative A would generate $135.5 million in gaming revenue annually, of which 15.4 percent ($20.8 million) would be substituted from the existing gaming market (Michigan Consultants, 2010; **Appendix O** of the Draft EIS/TEIR). Consistent with the market characterization in **Section 3.6**, more than 50 percent of the revenue would be generated from pass-through traffic to and from Nevada and Arizona and additional lodgers. The second largest source of revenue would be generated from the close-radius market. The majority of revenue under Alternative A would be new revenue generated by additional spending by pass-through traffic and residents near the Barstow site. Substitution totaling $20.8 million would be distributed among a variety of existing gaming facilities from all of the revenue sources, including casino gaming operations and non-gaming operations. This revenue would be diverted from a variety of existing gaming opportunities, including the three existing tribal casinos in the local competitive gaming market, Las Vegas casinos, Primm casinos, and local card rooms. No single gaming facility is expected to be affected disproportionately. Given the substantial levels of gaming wins at these facilities annually, declines from a substitution effect of this magnitude would have a minimal, if any, adverse effect on operation. In fact, the addition of another casino to the regional gaming market could contribute to the overall growth of the market. This would be a beneficial impact.

4.6.2 ALTERNATIVE B – REDUCED CASINO AND HOTEL DEVELOPMENT

Economic Effects

Expenditures on goods and services for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output.

Construction

Under Alternative B, construction activities are estimated to cost approximately $182.9 million, which is expected to generate a one-time total output of approximately $160.5 million within the County (**Table 4.6-1**). Direct output was estimated to total approximately $117.6 million, of which approximately $114.7 million (98 percent) would be attributed to the construction industry. Indirect and induced outputs were estimated to total $16 million and $26.8 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Construction of Alternative B would generate substantial output to a variety of businesses in San Bernardino County in the industries discussed above. Given the location of Alternative B in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Operation

In 2014, Alternative B is estimated to have 1,847,420 annual patrons (Michigan Consultants, 2010). Under Alternative B, the projected revenue for 2014 was estimated to be $126.4 million, which is expected to generate an annual total output of approximately $135.8 million within the County (**Table 4.6-2**). Direct output was estimated to total approximately $105 million, of which approximately $97.5 million (93 percent) would be attributed to the gaming and entertainment industry. Indirect and induced outputs were estimated to total $17.5 million and $13.3, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Operation of Alternative B would generate substantial output to a variety of businesses in San Bernardino County. Given the location of Alternative B in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Output received by San Bernardino County businesses would in turn increase their spending, and labor demand, thereby further stimulating the local economy. This would be considered a beneficial impact.

Substitution Effects

Under Alternative B a portion of revenue may be transferred from other local businesses through substitution. As noted in **Section 3.6**, the portion of the gaming market used for the purposes of this analysis was selected based upon proximity to the site as well as potential to capture regional drive-by

patrons. As estimated by Michigan Consultants, the anticipated gaming revenue substitution effect under Alternative B would be approximately $18,717,480 (17.0 percent of total projected gaming revenue for the project). Any anticipated substitution effects are likely to diminish after the first year of the project's operation and once local residents experience the casino and return to more typical spending patterns. Similar to Alternative A, this amount, should it occur, represents a negligible portion of total economic activity that would be generated by Alternative B. This impact would be comparable to Alternative A, but to a lesser extent, and would be less than significant.

Taxes

Alternative B would result in a variety of fiscal impacts. Similar to Alternative A, under Alternative B the Tribe would not pay corporate income taxes on revenue or property taxes on tribal land. In addition, Alternative B would increase demand for public services, resulting in increased costs for local governments to provide these services. Tax revenues would be generated for federal, state and local governments from the same activities discussed in Alternative A.

Alternative B would result in the entire area of each of the Barstow site parcels being transferred to trust status for the Tribe. Therefore, approximately $6,634 in property taxes would be lost by local governments including San Bernardino County and the city of Barstow. The MSA would provide for appropriate compensation by the Tribe to Barstow comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope.

For Alternative B, construction activities would generate one-time tax revenues, while operational activities would generate annual revenues to the federal, state, San Bernardino County, and local governments. Construction would result in an estimated $9.6 million in federal tax revenues, and $5.5 million in state/County/local government tax revenues. Operation of Alternative B would result in an estimated $2.1 million in federal tax revenues, and $2.0 million in state/County/local government tax revenues (**Table 4.6-3**) from indirect and induced taxes. Actual annual tax revenues generated by the project may be greater than those indicated above as direct personal income tax is not accounted for in the operational tax revenue estimate.

Similar to Alternative A, Alternative B would generate annual revenues to State and local governments from revenue sharing. As detailed in **Appendix O** of the Draft EIS/TEIR, Alternative B would have an estimated gaming machine revenue of $100.2 million, resulting in Barstow revenue sharing of $4.4 million. Additional payments to Barstow for problem gambling services would total $40,000, similar to Alternative A. The net generation of revenues to governments would be comparable but to a lesser extent than Alternative A, and is considered a beneficial effect.

Summary of Economic Effects

Construction and operation of the Alternative B would generate substantial economic output to a variety of businesses in San Bernardino County. Given the location of the Proposed Project in Barstow, the local economy of Barstow, as discussed in **Subsection 3.6.1**, would be expected to capture a large portion of this output. Additionally, Alternative B would generate substantial fiscal impacts to state, County, and local governments. Potential effects due to the loss of state and federal tax revenues resulting from the

operation as a sovereign nation on trust land would be offset by increased local, state and federal tax revenues resulting from construction and operation of the Proposed Project, and from revenue sharing programs per the tribal compact and the MSA. Overall, Alternative B would result in a beneficial impact to the San Bernardino County economy.

Employment

Investment in construction and operational activities would generate substantial direct employment opportunities and wages, as well as indirect and induced employment opportunities and wages. The IMPLAN model was used to estimate employment opportunities generated by Alternative B.

Construction

Under Alternative B, investment in construction activities would generate a one-time total of approximately 1,068 employment opportunities within the County during the construction phase (**Table 4.6-4**). Direct output was estimated to total approximately 721 employment opportunities, of which approximately 703 (98 percent) would be attributed to the construction industry. Indirect and induced employment opportunities were estimated to result in 120 and 226 employment opportunities, respectively.

Under Alternative B, investment in construction activities would generate one-time total wages of approximately $45.1 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $32.4 million, of which approximately $31.7 million (98 percent) would be attributed to the construction industry. Indirect and induced wages were estimated to total $5.1 million and $7.6 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County. The generation of employment and wages during the construction phase is considered a beneficial effect of Alternative B.

Operation

As calculated through IMPLAN, operation activities associated with Alternative B would generate an annual total of approximately 1,085 employment opportunities captured within San Bernardino County (**Table 4.6-6**). Direct employment impacts were estimated to total approximately 823 job opportunities. Based on employment projections for the Barstow Casino supplied by Michigan Consultants (2010), the anticipated number of job opportunities to be offered at the Casino itself would be 1,038 positions under Alternative B. Since the direct employment impact anticipated to be captured by San Bernardino County is estimated at 823 new positions, approximately 215 employees are anticipated to be residents of outside regions (1,038 - 823) (**Appendix O** of the Draft EIS/TEIR). Indirect and induced employment opportunities were estimated to total 150 and 112, respectively. Indirect and induced employment opportunities would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Under Alternative B, investment in operational activities would generate annual total wages of approximately $28.2 million within the County (**Table 4.6-6**). Direct wages were estimated to total approximately $18.5 million, of which approximately $16.2 million (88 percent) would be attributed to

the gaming and entertainment industry. Indirect and induced wages were estimated to total $5.9 million and $3.8 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County. The generation of employment and wages during the operation phase is considered a beneficial effect of Alternative B.

Summary of Employment Effects

Construction and operation of Alternative B would generate substantial temporary and ongoing employment opportunities and wages that would be primarily filled by the available labor force in Barstow and San Bernardino County. Given the projected unemployment rate, and the dynamics of the local labor market, San Bernardino County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative B. This would result in employment and wages for persons previously unemployed, increasing the ability of the population to provide themselves with health and safety services and contributing to the alleviation of poverty among lower income households. Additionally, in accordance with Section 10 of the MSA, the Tribe shall work in good faith with the City to employ qualified City residents at the Tribe's resort facilities, as well as offer training programs to assist City residents in becoming qualified for positions at the Resort (**Section 5.6**). This is considered a beneficial effect.

Housing

The 2014 County housing market would fulfill the demands for housing under Alternative B. Indirect impacts resulting from growth inducement are discussed further in **Section 4.15** and **Appendix O** of the Draft EIS/TEIR. This impact would be comparable, but to a slightly lesser extent than Alternative A. A significant adverse impact to the housing market would not occur. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

Social Impacts

Social impacts including pathological and problem gambling and crime from Alternative B would be comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope. With implementation of the conditions of the MSA listed in **Section 5.6**, adverse social impacts would not occur.

Community Impacts

Public Schools

Based on the information presented under Alternative A, the enrollment rate within the BUSD is calculated at approximately 28 percent of the total population of Barstow. The direct employment impact discussion determined that in 2014 Alternative B would result in the relocation of approximately 108 employees to the San Bernardino County region. Applying the enrollment rate and assuming all new employees move within the BUSD service area, Alternative B is projected to increase BUSD enrollment by 30 new students in 2014. Given that any anticipated new students would be distributed across all grade levels between kindergarten through the continuation school, 30 new students would be considered

a nominal impact on the BUSD service levels. Additionally, the BUSD would likely collect additional tax revenue from the families of new students and would use these taxes to hire additional teachers to meet additional demand, if necessary. Therefore, potential increased enrollment would have a nominal effect on the ability of BUSD to provide education services at existing levels. Additionally, in accordance with Section 5(A) of the MSA, the Tribe shall make payments to the BUSD equal to the service, development, and impact fees which the District would receive if the parcels were not taken into trust. With implementation of the MSA, Alternative B would not result in adverse impacts to San Bernardino County public schools.

Other Public Facilities

Impacts to libraries, parks and other public amenities from Alternative B would be comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope.

Environmental Justice

Minority and Low-Income Communities

Alternative B could affect Census Tracts 94, 95, and 120 identified as minority communities in Alternative A, since both alternatives would be located at the Barstow site. Similar to Alternative A, Alternative B would not result in disproportionately adverse impacts to surrounding communities. Adverse effects to minority and low-income communities would not result.

Competition

The competitive gaming market for Alternative B would be the same as Alternative A, since both alternatives would be located at the Barstow site.

The discussion of net revenues in **Table 4.6-3** identify that Alternative B would generate a gross total of $110.1 million in casino revenue, of which 17.0 percent ($18.7 million) would be substituted from the existing gaming market. Consistent with the market characterization, the largest portions of revenue would be generated from pass-through traffic to and from Nevada and Arizona and close-radius residents. Compared to Alternative A, a larger portion of revenue would come from close-radius residents and a slightly smaller portion from pass-through traffic to and from Nevada. The effect of substitution would be comparable but to a lesser extent than Alternative A. Given the substantial levels of gaming wins at these facilities annually, declines from a substitution effect of this magnitude would have a minimal, if any, adverse effect on operation. In fact, the addition of another casino to the regional gaming market could contribute to the overall growth of the market. This would be a beneficial impact.

4.6.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Economic Effects

Expenditures on goods and services for construction and operational activities would generate substantial direct economic output, as well as indirect and induced economic output.

Construction

Under Alternative C, construction activities are estimated to cost approximately $9.0 million, which is expected to generate a one-time total output of approximately $7.6 million within San Diego County (**Table 4.6-1**). Direct output was estimated to total approximately $4.4 million, of which approximately $3.0 million (68 percent) would be attributed to the construction industry. Indirect and induced outputs were estimated to total $1.4 and $1.8 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout San Diego County.

Operation

In 2014, Alternative C is estimated to have 119,763 annual patrons (Michigan Consultants, 2010). Under Alternative C, the projected revenue for 2014 was estimated to be $9.3 million, which is expected to generate an annual total output of approximately $14.2 million within San Diego County (**Table 4.6-2**). Direct output was estimated to total approximately $8.2 million, of which approximately $7.0 million (85 percent) would be attributed to the gaming and entertainment industry. Indirect and induced outputs were estimated to total $3.6 and $2.4 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Substitution Effects

Under Alternative C a portion of revenue may be transferred from other local businesses through substitution. As estimated by Michigan Consultants, the anticipated gaming revenue substitution effect under Alternative C would be approximately 22.0 percent of total projected gaming revenue for the project ($1,743,908). Substitution impacts would be diffused throughout the County because there are already a large number of existing casinos that operate in a competitive environment. It is likely that each of the existing San Diego County casinos would continue to generate positive cash flows. Moreover, anticipated substitution effects are likely to diminish after the first year of the project's operation and once local residents experience the casino and return to more typical spending patterns. Similar to Alternative A, this amount, should it occur, represents a negligible portion of total economic activity that would be generated by Alternative C. The overall amount of the project's revenue derived through substitution is significantly less under Alternative C than it is under Alternative A, and would be considered less than significant.

According to the 2000 Harvard University study described under Alternative A, worst-case non-gaming substitution effects, occurring in rural environments, have shown on average a nine percent decrease in earnings at local restaurants and bars and an increase in earnings in other commercial sectors (Taylor et al., 2000). Although the Los Coyotes Reservation is described as located within a rural area, it is also located within a region characterized by an abundance of existing tribal casino resorts, thus worst case effects as described in the Harvard study would not apply to the Los Coyotes Project Site. Alternative C would provide a gaming facility alternative for gamers to choose from, rather than providing the first casino to the area. As such, Alternative C would have less than significant potential to disrupt the current competitive environment of the region. Thus, the potential for substitution is limited. Nonetheless, it may be inferred that if substitution occurs it would be at some percentage lower than nine percent. Given

that it is not possible to reliably quantify the substitution effects, this analysis does not reduce the economic impacts from the proposed casino and other alternatives to account for substitution effects. Some of the substitution effects would be counteracted by the behavior of casino guests other than local residents. Specifically, as the casino would draw non-residents to the area, the associated increase in new visitor demand for off-site entertainment venues, restaurants, and bars would make up for some area residents choosing to visit Alternative C rather than other local establishments. Thus, less than significant substitution effects would occur.

Taxes

Alternative C would result in a variety of fiscal impacts. In addition, Alternative C would increase demand for public services, resulting in increased costs for local governments to provide these services. Tax revenues would be generated for Federal, State and local governments from the same activities discussed in Alternative A.

Alternative C would be constructed at the Los Coyotes site, which is on land that is already held in trust by the federal government for the Tribe. Therefore, no property taxes would be lost. Tax revenues that would be generated for federal, state, and local governments from economic activity associated with construction and operation of Alternative C, but to a lesser extent than Alternative A, since Alternative C is reduced in size and scope (**Table 4.6-3**). Local governments under Alternative C include San Diego County and cities within San Diego County that would experience economic activity as a result of Alternative C. Construction would result in an estimated $611,011 in federal tax revenues, and $420,425 in state/County/local government tax revenues. Operation of Alternative C would result in an estimated $478,979 in federal tax revenues and $396,899 in state/County/local government tax revenues (**Table 4.6-3**) from indirect and induced taxes. Actual annual tax revenues generated by the project may be greater than those indicated above as direct personal income tax is not accounted for in the operational tax revenue estimate. The net generation of revenues to governments would be less than Alternative A, but would still be considered a beneficial effect.

Summary of Economic Effects

Construction and operation of the Alternative C would generate substantial economic output to a variety of businesses in San Diego County. Additionally, the Proposed Project would generate substantial fiscal impacts to state, County, and local governments. Overall, the Alternative C would result in a beneficial impact to the San Diego County economy.

Employment

Investment in construction and operational activities would generate substantial direct employment opportunities and wages, as well as indirect and induced employment opportunities and wages. The source of direct, indirect, and induced employment opportunities and wages would be similar to those for economic output, as discussed above. The IMPLAN model was used to estimate employment opportunities generated by Alternative C.

Construction

Under Alternative C, investment in construction activities would generate a one-time total of approximately 47 employment opportunities within San Diego County (**Table 4.6-4**). Similar to Alternative A, the number of employees would be equivalent to the number of person-years available from wages. A person-year is defined as the amount of labor one full-time employee can complete in a calendar year. For example, two half-time employees working for a year would constitute one person-year. Direct output was estimated to total approximately 26 employment opportunities, of which approximately 20 (77 percent) would be attributed to the construction industry. Indirect and induced employment opportunities were estimated to result in a negligible number of new employment opportunities.

Employment opportunities generated from construction and operation of Alternative C would result in wage generation. Wage totals include hourly and salary payments as well as benefits including health and life insurance and retirement payments. Under Alternative C, investment in construction activities would generate one-time total wages of approximately $2.2 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $1.3 million, of which approximately $0.94 million (72 percent) would be attributed to the construction industry.

Operation

Similar to Alternative A, employment opportunities generated from the operation of Alternative C would include entry-level, mid-level, and management positions. **Table 4.6-5** shows examples of employment opportunities typically offered by tribal casino and resort facilities. Average salaries offered are expected to be consistent with or greater than those of other tribal gaming facilities and competitive in the local labor market.

As calculated through IMPLAN, operation activities associated with Alternative C would generate an annual total of approximately 108 employment opportunities captured within San Diego County (**Table 4.6-6**). Direct employment impacts were estimated to total approximately 68 job opportunities. Indirect and induced employment opportunities were estimated to total 23 and 17, respectively. Indirect and induced employment opportunities would be dispersed and distributed among a variety of different industries and businesses throughout San Diego County.

Under Alternative C, operation activities associated with Alternative C would generate annual total wages of approximately $3.5 million within San Diego County (**Table 4.6-6**). Direct wages were estimated to total approximately $1.7 million, of which approximately $1.3 million (76 percent) would be attributed to the gaming and entertainment industry. Indirect and induced wages were estimated to total $1.1 and $0.7 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

In 2009, San Diego County had a labor force of 1,557,369 people, of which 9.7 percent (151,229 people) of the labor force was unemployed (Bureau of Labor Statistics, 2009). In 2009, the U.S. unemployment rate averaged 9.3 percent; lower than the unemployment rate in San Diego County. Since 2000, the labor force of San Diego County has increased by a rate of 1.1 percent each year. According to the Council of

Economic Advisers, it is projected that the U.S. will observe an approximate 6.5 percent unemployment rate in 2014 (Council of Economic Advisers, 2010). For the purposes of this analysis, it is assumed that the unemployment rate for San Diego County will follow a similar trend to what has been projected for the U.S., and that the County will experience an unemployment rate of 6.9 percent in 2014 and a labor force of 1,644,929 people (**Appendix O** of the Draft EIS/TEIR; **Table 4.6-10**).

TABLE 4.6-10
PROJECTED SAN DIEGO COUNTY LABOR MARKET

2014	
Labor Force	1,644,929
Unemployment (Rate)	113,500 (6.9%)

Source: AES, 2010.
Note: 2014 Labor market considers direct, indirect, and induced employment.

A portion of new employment opportunities would be filled by people in the County that are currently employed, thereby freeing up existing employment opportunities for other workers. For reasons described above under *Economic Effects*, Alternative C is not expected to result in significant permanent job loss elsewhere due to substitution effects.

Summary of Employment Effects

Construction and operation of Alternative C would generate substantial temporary and ongoing employment opportunities and wages that would be primarily filled by the available labor force in San Diego County. Given the projected unemployment rate, and the dynamics of the local labor market, San Diego County is anticipated to be able to easily accommodate the increased demand for labor during the operation of Alternative C. This would result in employment and wages for persons previously unemployed, increasing the ability of the population to provide themselves with health and safety services and contributing to the alleviation of poverty among lower income households. This is considered a beneficial effect.

Housing

As discussed in **Subsection 3.6.2**, in 2010 the vacancy rate in San Diego County was slightly lower than the State. In January 2010, there were 1,154,228 housing units in San Diego County, of which 4.4 percent (50,786 units) were vacant. Based on the information presented in **Section 3.6.2**, it was determined that the total number of housing units increases annually by approximately 1.1 percent, while the percentage of vacant units remains relatively stable and tends to increase annually by approximately 0.004 percent. Accordingly, in 2014, the San Diego County housing market is projected to have 1,205,858 total units and 53,450 vacant units (**Table 4.6-11**).

Based on regional housing stock projections, and current trends in San Diego County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative C. Therefore, Alternative C is not expected to stimulate regional

housing development. A significant adverse impact to the housing market would not occur. Potential indirect effects resulting from growth inducement are discussed further in **Section 4.14**.

TABLE 4.6-11
SAN DIEGO COUNTY 2014 HOUSING MARKET

Housing Units	2014
Units	1,205,858
Occupied Units	1,152,438
Vacant Units	53,420
% Vacant	4.43%
Source: California Department of Finance, 2010; AES, 2010.	

Social Impacts

Social impacts including pathological and problem gambling and crime from Alternative C would be comparable but to a lesser extent than Alternative A, since Alternative C is reduced in size and scope. Additionally, a Tribal compact with the State would include provisions for contribution to problem gambling addiction treatment programs under Alternative C. As such, significant adverse impacts to problem gambling and crime would not be anticipated to occur.

Community Impacts

Public Schools

As discussed in **Subsection 3.6.4**, in 2008/2009 the Warner Unified School District (WUSD) had an enrollment of 266 with a student to teacher ratio of 15.3:1. Given the small magnitude of employee opportunities generated from Alternative C, the potential exists for the demand of only a few new students. At existing enrollment levels new students from Alternative C would have a nominal effect on the ability of WUSD to provide services at current levels. This can be demonstrated by the fact that for current student-to-teacher ratios to correspond with State rates, enrollment would have to increase by approximately 90 students. This effect would be comparable but to a lesser extent than Alternative A. An adverse impact to San Diego County public schools would not occur.

Other Public Facilities

Effects to services provided by libraries, parks and other public amenities from Alternative C would be comparable but to a lesser extent than Alternative A, since Alternative C would generate fewer employment opportunities.

Environmental Justice

Minority and Low-Income Communities

The Los Coyotes Tribe has been identified as a minority and low-income community in the Los Coyotes Reservation site area. Due to their close proximity to the site and connection with the project, potential

socioeconomic effects would be most pronounced for the Los Coyotes Tribe. As such, the Los Coyotes Tribe would have the greatest potential to be disproportionately affected by any potential increase in crime or problem gambling as these impacts are considered local in nature. However, the Los Coyotes Tribe would also experience the beneficial impacts of Alternative C, including increased economic output, employment, and wages as described under the purpose and need for the Proposed Action in **Section 1.2**. The beneficial impacts of Alternative C are anticipated to outweigh potential adverse impacts of Alternative C for the Los Coyotes Tribe. As such, Alternative C would result in an overall beneficial impact to the Los Coyotes Tribe.

Other than the Los Coyotes Tribe, no minority or low-income communities were identified within proximity of the Los Coyotes site; therefore, Alternative C would not result in any disproportionately adverse impacts to other surrounding communities. A less than significant effect would result.

Competition

There are approximately 26 existing casinos and two proposed casinos within San Diego County. The nearest gaming facilities to the Los Coyotes site are the Santa Ysabel Casino located approximately 11 miles southwest, the Cahuilla Creek Casino located approximately 25 miles to the north, and Harrah's Rincon Casino and Resort and Valley View Casino, which are both located 25 miles to the west.

Alternative C would generate $9.2 million in casino revenue, of which 22 percent ($2.0 million) would be substituted from the existing gaming market. This revenue would be diverted from a variety of existing casino opportunities, including the nine existing tribal casinos in the competitive gaming market and local card rooms. No one gaming facility is expected to be affected disproportionately. Given the substantial casino revenues generated at these facilities annually, declines from a substitution effect of this magnitude would have a minimal adverse effect on operation. In fact the addition of another casino to the regional gaming market could contribute to the overall growth of the market. This would be a beneficial effect.

4.6.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Economic Effects

Expenditures on goods and services for construction and operational activities would generate direct economic output, as well as indirect and induced economic output.

Construction

Alternative D consists of the construction of a campground instead of a casino and would be located at the Los Coyotes Reservation site. One-time direct impacts from construction of Alternative D are shown in **Table 4.6-1**. The total cost of construction, including all land, hard, and soft costs, is estimated to be approximately $2.4 million. Expenditures on goods and services from construction activities are estimated to generate a one-time total output of $2.8 million in San Diego County. Direct output was estimated to total approximately $1.6 million, of which approximately $1.5 million (94 percent) would be attributed to the construction industry. Indirect and induced output, were estimated to total $0.54 and $0.67 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Operation

Under Alternative D, projected revenue for 2014 was estimated to be $0.680 million, which is expected to generate an annual total output of approximately $1.0 million within the County (**Table 4.6-2**). Direct output was estimated to total approximately $0.603 million, of which 100 percent would be attributed to the accommodation and food services industry. Indirect and induced output was estimated to total $0.237 and $0.212 million, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Substitution Effects

As stated in **Appendix O** of the Draft EIS/TEIR, data related to the projected substitution effect of Alternative D was not available at the time of this analysis. The projected substitution effect depends on how many and what type of other establishments are within the same market area as the campground, disposable income levels of local residents and their spending habits, as well as other economic and psychological factors affecting the consumption decisions of local residents. To the extent that the campground acts as a destination location, substitution effects are diffused, as the campground would draw patrons from a widespread area. It should be noted that there are numerous existing campgrounds in the region. As such, any substitution effects resulting from Alternative D would be greatly diffused over the region and would not result in adverse environmental effects.

Taxes

Under Alternative D, all land is located on land held in trust for the Tribe by the federal government. As such, no further property tax loss would occur with the project. For Alternative D, construction activities would generate one-time tax revenues, while operational activities would generate annual revenues to the federal, state, county, and local governments. Construction would result in an estimated $222.8 thousand in federal tax revenues, and $127.2 thousand in state/county/local government tax revenues. Operation of Alternative D would result in an estimated $36,221 in federal tax revenues and $31,997 in state/County/local government tax revenues from indirect and induced taxes (**Table 4.6-3**). This would be a beneficial impact, although to a significantly lesser extent than Alternative C.

Employment

Investment in construction and operational activities would generate negligible employment opportunities and wages. The IMPLAN model was used to estimate employment opportunities generated by Alternative D.

Construction

Under Alternative D, investment in construction activities would generate an annual total of approximately 18 employment opportunities within the County during the construction phase (**Table 4.6-4**). Direct employment was estimated to total approximately 10 employment opportunities, of which all would be attributed to the utilities industry. Indirect and induced employment opportunities were

estimated to total three and five, respectively. Indirect and inducted employment opportunities would be dispersed and distributed among a variety of different industries and businesses throughout San Diego County

Under Alternative D, investment in construction activities would generate annual total wages of approximately $1.5 million within the County (**Table 4.6-4**). Direct wages were estimated to total approximately $953.6 thousand, of which approximately $681.9 thousand (72 percent) would be attributed to the utilities industry. Indirect and induced wages were estimated to total $252.3 and $295.9 thousand, respectively. Indirect and induced output would be dispersed and distributed among a variety of different industries and businesses throughout the County.

Operation

Under Alternative D, investment in operational activities would generate a net annual total of approximately nine employment opportunities within San Diego County (**Table 4.6-6**), including six direct employment opportunities. Investment in operational activities under Alternative D would generate total net annual wages of approximately $185.0 thousand within San Diego County (**Table 4.6-6**). This impact would be similar to Alternative C, although to a lesser extent. This would be considered a less than significant impact.

Housing

As described under Alternative C, the 2014 San Diego County housing market could easily fill any demands for housing under Alternative D. Given the small magnitude of employment opportunities anticipated to be generated by Alternative D, Alternative D would result in a negligible, if any, impact to the housing market, and would be less than significant.

Social Impacts

No pathological or problem gambling impacts would result from Alternative D since a casino component would not be included. Impacts to crime would be similar but much reduced when compared to Alternative C given that Alternative D results in a slight increase in patrons and employees in the same region and Alternative C.

Community Impacts

Public Schools

As discussed in **Subsection 3.6.2**, in 2008/2009 the WUSD had an enrollment of 266 with a student to teacher ratio of 15.3:1. Given the small magnitude of employee opportunities generated from Alternative D, the potential exists for the demand of only a few new students. At existing enrollment levels new students from Alternative D would have a nominal effect on the ability of WUSD to provide services at current levels. This can be demonstrated by the fact that for current student-to-teacher ratios to correspond with State rates, enrollment would have to increase by approximately 90 students. This effect would be less than Alternative C within San Diego County.

Other Public Facilities

Effects to services provided by libraries, parks and other public amenities from Alternative D would be less than Alternative C, since Alternative D would generate fewer employment opportunities.

Environmental Justice

Minority and Low-Income Communities

The Los Coyotes Tribe has been identified as a minority and low-income community in the Los Coyotes Reservation site area. Due to their close proximity to the site and connection with the project, potential socioeconomic effects would be most pronounced for the Los Coyotes Tribe. As such, the Los Coyotes Tribe would have the greatest potential to be adversely affected by any potential increase in crime as this impact is considered local in nature. However, the Los Coyotes Tribe would also experience the beneficial impacts of Alternative D, including increased economic output, employment, and wages. The beneficial impacts of Alternative D would be anticipated to outweigh potential adverse impacts of Alternative D for the Los Coyotes Tribe, but to a lesser degree than Alternative C. As such, Alternative D would result in a less than significant impact to the Los Coyotes Tribe.

Other than the Los Coyotes Tribe, no minority or low-income communities were identified within proximity of the Los Coyotes site; therefore, Alternative D would not result in any disproportionately adverse impacts to other surrounding communities. A less than significant effect would result.

Competition

Since Alternative D would consist of a campground rather than a casino, no competitive impacts would occur to the existing gaming market.

4.6.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of either the Barstow or the Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.7 TRANSPORTATION/CIRCULATION

This section identifies the direct effects to transportation and circulation that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.7**. Cumulative effects are identified in **Section 4.13**. Indirect effects associated with off-site construction and growth-inducement are identified in **Section 4.14**. Measures to avoid and, if necessary, mitigate for adverse effects are presented in **Section 5.2**.

4.7.1 ANALYSIS METHODOLOGY

The project would result in the addition of vehicle traffic to local roadways and intersections. A traffic impact analysis (TIA) was prepared for Alternatives A and B by Linscott, Law & Greenspan Engineers (LL&G) and a TIA was prepared for Alternative C by Kunzman Associates (Kunzman); both TIAs are provided in **Appendix H** of the Draft EIS/TEIR. Additionally, a Supplemental Traffic Information Memorandum was prepared and is included in **Appendix Q** of the Final EIS/TEIR. This section incorporates the results of these studies and describes the number of trips that would be generated by Alternatives A, B, C, and D and any potential adverse effects that would occur to the roadway system within the study area. Traffic effects resulting from Alternative D were analyzed using trip generation rates provided by the International Traffic Engineer's *Trip Generation Manual* 8th Edition, 2009.

Consultation

In order to determine the appropriate study area and analysis methodologies for the project, a series of scoping discussions was held with the California Department of Transportation (Caltrans), the City of Barstow (City), San Bernardino Associated Governments (SANBAG), and the Southern California Association of Governments. In addition, San Diego County was contacted concerning the study area and analysis methodologies for Alternatives C and D.

Study Area

To assess changes in traffic conditions, eleven intersections, four roadway segments, and four freeway segments were evaluated for Alternatives A and B; four intersections and one roadway segment were evaluated under Alternative C. Detailed descriptions of study intersections and roadway segments for the Barstow and Los Coyotes sites are included in **Section 3.0** and **Appendix H** of the Draft EIS/TEIR.

Methodologies

Identification of the study areas, including intersections, roadway segments, and freeway segments, was based on an estimate of the two-way traffic volumes near the project sites. Roadway segments have been included within the analysis when the anticipated project-related traffic volume exceeds 50 two-way trips in the peak hours. Freeway segments have been included when the project-related traffic volume exceeds 100 two-way peak hour trips. In accordance with *Caltrans Guide for the Preparation of Traffic Impact Studies*, impacts to freeway facilities are analyzed under cumulative conditions in **Section 4.13**. Based on the methodology recommended in the San Bernardino County Congestion Management Program (CMP),

impacts to transportation facilities further than five miles from the project sites are not analyzed. In accordance with the Municipal Service Agreement (MSA) between the Tribe and the City, the traffic impact study prepared for the proposed alternatives is consistent with the requirements of the CMP.

Peak Hour

Traffic analyses for Alternatives A, B, and C were completed using weekday mid-day (noon to 2 PM.) and evening (4 PM to 6 PM peak hour), and Saturday mid-day (noon to 2 PM) and evening (5 PM to 7 PM) peak hour traffic volumes. Sunday peak hour traffic analyses was completed for study area intersections, ramp diverge operations, and traffic queuing lengths for Alternatives A and B. Sunday analyses showed the LOS and delay at study intersections and traffic queuing lengths were less than weekday and Saturday LOS, delays, and queuing lengths, therefore only weekday and Saturday conditions are presented for operations at these facilities. Ramp diverge operation lengths were shown to be greater during the Sunday PM peak hour than the weekday or Saturday mid-day or PM peak hour, and therefore are presented below. Traffic analyses for the non-gaming alternative (Alternatives D) was completed using weekday morning and evening peak hour traffic volumes.

Trip Generation

Casino

Trip generation rates for the alternatives relate land uses to the number of vehicles entering or exiting the site. Where applicable, trip generation is derived from trip rates provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. However, a more customized approach has been developed to characterize trip generation rates for the proposed casino. The traditional reference from which to determine trip generation, the ITE *Trip Generation Manual*, does include trip generation information for casinos; however, this information is based on only a few facilities, such as those found in Reno, Las Vegas, or Atlantic City. Indian Gaming casinos have unique trip generation characteristics when compared to traditional casinos, due primarily to isolated locations and types of gaming offered. Although trip generation characteristics for traditional casinos were not used directly to establish trip generation for the proposed gaming alternatives, information from these sources was utilized to help verify trip generation assumptions. The approach used to establish trip generation rates for this analysis was to investigate trip generation characteristics at Indian casinos, and utilize information within traffic studies for comparable developments. Methodology used to establish trip generation for the proposed gaming alternatives is described in detail in **Appendix H** of the Draft EIS/TEIR.

Hotel

Trip generation for the hotel components under Alternatives A and B were obtained from the ITE *Trip Generation Manual*. The analysis assumes that the internal interaction between the casino and hotel would account for a 75 percent reduction in hotel trips. A 75 percent reduction in hotel trips due to internal capture is consistent with the *Mississippi Gulf Coast Transportation Management Plan for Waterfront Development*, 1993.

Drive-in Restaurant

The ITE trip generation rate for "high-turnover (sit-down) restaurant" was used to determine the number of potential trips associated with the proposed drive-in restaurant for Alternative A and B.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternatives A and B, peak hour traffic counts of the existing directional distribution of traffic for areas in the vicinity of the project site and information on future development and traffic impacts in the area was reviewed. The distribution of new trips generated by Alternatives A and B and is provided in **Figure 4.7-1**.

Assessment Criteria

Determination of adverse effects is based on acceptable LOS, as determined by the *Caltrans Guide for the Preparation of Traffic Impact Studies* and local policies. Applicable LOS thresholds for the Barstow and Los Coyotes sites are described below.

Barstow Site

The City's General Plan states that peak hour intersection operations of LOS D or better are acceptable. Therefore, LOS E or F on City intersections is considered unacceptable. Intersections outside the jurisdiction of the City were held to the City's standard, which is consistent with Caltrans Interstate 15 (I-15) interchange intersections standard.

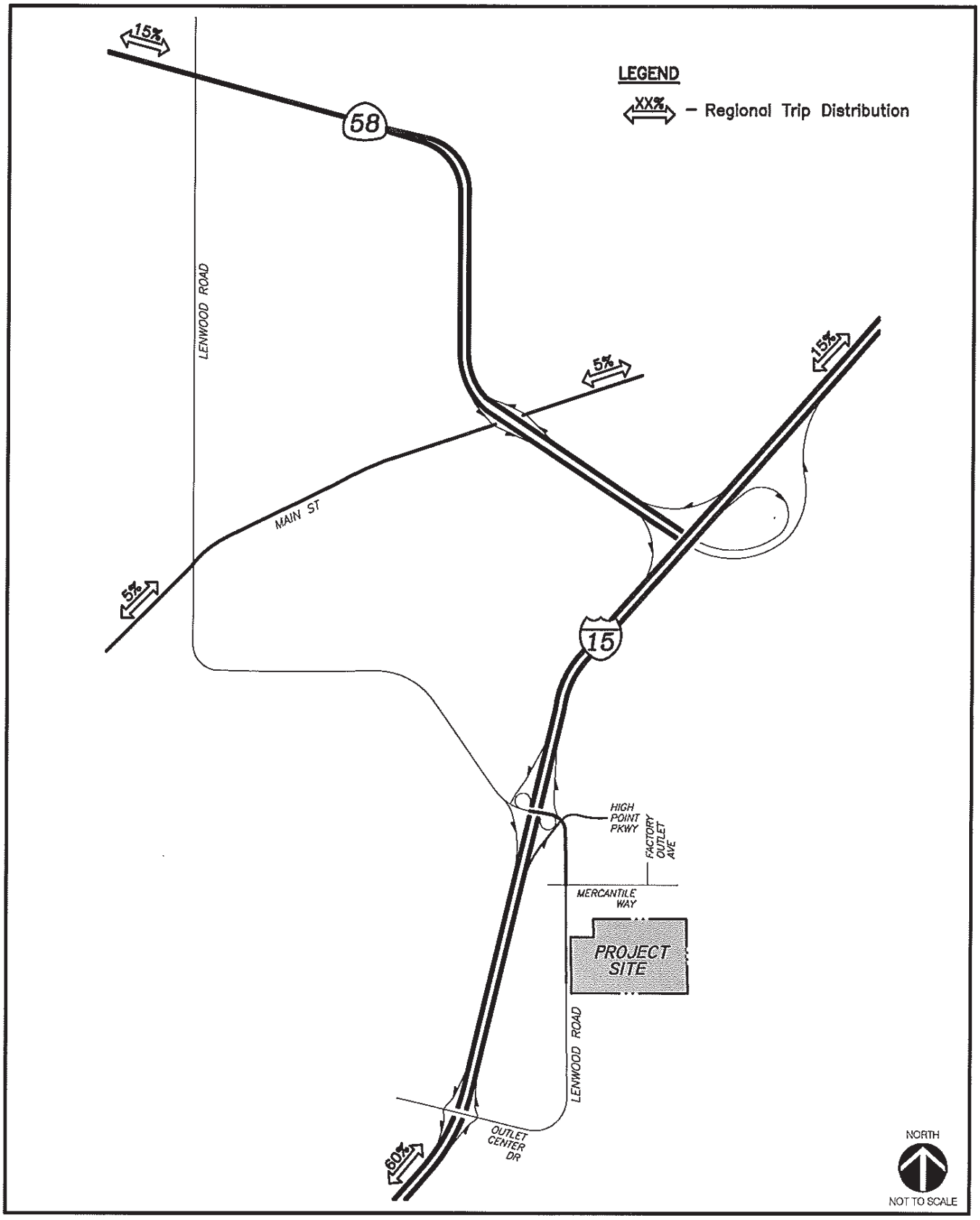
An adverse effect would occur if a roadway exceeds, either individually or cumulatively, an LOS standard established by the San Bernardino County Congestion Management Agency for designated roadways.

The congestion management program (CMP) for San Bernardino County, which was prepared by SANBAG in cooperation with various agencies including the Caltrans, considers LOS E on freeway facilities to be acceptable. Worsening of freeway conditions to LOS F is considered unacceptable within the Barstow Site study area, except where an existing LOS F condition is identified in the CMP document (LL&G, 2010).

Los Coyotes Site

The San Diego County General Plan states that peak hour intersection operations of LOS D or better are generally acceptable. Therefore, LOS E or F on San Diego County roadways is considered unacceptable.

Caltrans typically would not seek transportation mitigation from a project if the LOS of affected facilities is C or better after the addition of project related traffic. Therefore, because specific LOS thresholds have not been developed for state highway facilities in the Los Coyotes Study area, LOS of D or worse shall be considered deficient.



SOURCE: Linscott Law & Greenspan Engineers, 5/4/2010; AES, 2011

Figure 4.7-1

Barstow Casino and Hotel Primary Trip Distribution

Traffic Signal Warrant Analysis

Traffic signal warrants establish minimum conditions under which a traffic signal should be considered as an option to address traffic issues at a particular intersection. Traffic signals may be justified (warranted) when traffic operations fall below acceptable thresholds. Satisfying a traffic signal warrant allows Caltrans or the appropriate jurisdiction make an informed decision on whether to install a traffic signal. Traffic volumes at the unsignalized study intersections were assessed using the peak hour warrant, as specified in the Manual of Uniform Traffic Control Devices 2003 California Supplement (California MUTCD). The peak hour warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day. This warrant is generally the first warrant to be satisfied. The warrant applies to traffic conditions during a one-hour peak that are sufficiently high such that minor street traffic experiences excessive delay in entering and crossing the street.

4.7.2 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Site Access

Access to the Casino project site is proposed via one driveway located along Lenwood Road approximately 300 yards south of the existing Hampton Inn Driveway. The project driveway would have full turning access to the project site and would satisfy the City's corner sight distance standards. The intersection of Lenwood Road / Project Access would be signalized when Caltrans warrants are met.

Construction Traffic

Construction of Alternative A would require truck trips for the export of fill, import of materials and equipment, and daily construction workers trips. Traffic impacts resulting from the construction of Alternative A construction activities would be temporary and intermittent in nature and would generally occur during off-peak traffic hours (5 AM to 6 AM and 10 AM to 4 PM). Construction activity impacts would be concentrated on Lenwood Road in the immediate vicinity of the Barstow site. Traffic-related construction impacts may include traffic delays, one-way traffic control, temporary road closures, and traffic detours. Daily construction trips are estimated to be approximately 300, including construction worker trips, material delivery, equipment delivery, and fill exportation. Traffic generated by construction of Alternative A would be less than operational traffic, which, as discussed below, does not lead to a decrease in LOS below established thresholds. In addition, construction traffic is temporary; therefore, significant adverse effects associated with construction traffic would not occur.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative A is shown in **Table 4.7-1**. Methodology used to determine trip generation is described in **Subsection 4.7.1**.

TABLE 4.7-1
ALTERNATIVE A PEAK HOUR TRIP GENERATION

Proposed Land Use	Trips per unit	Weekday				Saturday			
		Mid-day		PM		Mid-day		PM	
		Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips
Casino	229.02 KSF	3.95	905	4.95	1,134	6.90	1,580	6.90	1,580
Hotel[1]	160 Rooms	0.15	24	0.15	23	0.18	29	0.18	29
Drive-in Restaurant	5.86 KSF	11.52	67	11.15	66	14.07	83	14.07	83
Total Number of Trips		__	*996*	__	*1,223*	__	*1,692*	__	*1,692*
Casino Diverted-link Trips (40%)[3]		__	361	__	453	__	632	__	632
Restaurant Diverted-link Trips (20%)[4]			13		13		17		17
Total New Trips			**622**		**757**		**1,043**		**1,043**

Notes:
[1] Casino trip generation rate based on Shingle Springs Rancheria Interchange Transportation Circulation Report dated April 2002.
[2] Hotel trip generation rate based on ITE Trip Generation Manual 8th Edition Rate with 75 percent reduction to account for internal trips between the hotel and casino.
[3] Casino diverted-link percentages are based on Shingle Springs Rancheria Interchange Transportation/ Circulation Report dated April 2002.
[4] Restaurant diverted-link percentages for high-turnover sit-down restaurants are based on SANDAG Not So Brief Guide to Vehicle Trip Generation Rates, April 2002.
KSF = thousand square feet.
Source: LL&G, 2010.

Diverted-link Trips

Not all of the traffic to and from Alternative A would be newly generated trips, some trips will be trips that are on the road going to a different destination and stop at the proposed facilities; these types of trips are referred to as "diverted-link" trips. The traffic volume on I-15 in the City of Barstow is 60,000 vehicles per day (Caltrans, 2009). A large number of these trips are traveling to Las Vegas and would have a tendency to stop at the proposed gaming facility. Accordingly, trip generation calculated for Alternative A has been adjusted to consider the number of trips that already exist on the roadway and would visit the proposed facility.

The traffic study prepared for Alternative A conservatively uses a casino diverted-link capture rate of 40 percent and a restaurant diverted-link capture rate of 20 percent based on information validated by data contained in previous traffic studies prepared for comparable casino developments. A 40 percent casino

diverted-link capture rate equates to a 4.7 percent capture rate from I-15. A capture rate from I-15 of between three and five percent is consistent with the capture rates of the casinos used to determine the trip generation rate applied to the gaming alternatives. The methodology used to establish diverted-link capture rates for Alternative A is described in **Appendix H** of the Draft EIS/TEIR. **Table 4.7-1** shows the net new trips added to the local roadway network under Alternative A after diverted-link trip reduction.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative A, peak hour traffic counts of the existing directional distribution of traffic for areas in the vicinity of the project site, and information on future development and traffic impacts in the area was reviewed. The distribution of new trips generated by Alternative A is shown in **Figure 4.7-1**.

Background Traffic Conditions

No Project Traffic Volumes

To assess opening year traffic conditions, existing traffic (refer to **Section 3.7**) is combined with area-wide growth and other approved developments in the project area (refer to table 8-1 of the TIA provided in **Appendix H** of the Draft EIS/TEIR). To account for area-wide growth, 2013 opening year traffic volumes have been calculated using a conservative four percent annual growth rate of existing traffic volumes. The analysis of cumulative developments and area-wide growth in the build-out year and the associated increase in existing traffic within the study area is provided in **Appendix H** of the Draft EIS/TEIR.

Background Intersection Operations

Table 4.7-2 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections under background traffic conditions in the opening year 2013 without the addition of project related traffic. As shown in the table, each of the study intersections would operate at an acceptable LOS of C or better under background traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections are provided in the TIA (**Appendix H** of the Draft EIS/TEIR).

Background Roadway Segments

Volume to capacity ratios and LOS for background conditions in the year 2013 have been calculated for the study area roadway segments and are shown in **Table 4.7-3**. All of the study roadway segments are projected to operate within an acceptable LOS under background traffic conditions without the addition of Alternative A.

TABLE 4.7-2
BACKGROUND INTERSECTION CONDITIONS – 2013 NO PROJECT

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	12.8	B	11.4	B	12.5	B	11.1	B
2. Lenwood Rd./Main St.	TS	30.8	C	40.3	D	35.6	D	33.7	C
3. Main St./SR-58 EB Ramps	TS	3.4	A	3.8	A	3.9	A	3.4	A
4. Main St./SR-58 WB Ramps	TS	11.3	B	18.0	B	14.8	B	14.7	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.0	B	12.5	B	12.5	B	12.0	B
6. Lenwood Rd./I-15 NB Ramps	TS	16.3	B	16.8	B	19.0	B	15.8	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	9.8	A	10.1	B	11.6	B	10.8	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.0	A	8.7	A	9.3	A	8.9	A
9. Lenwood Rd./Mercantile Way	TS	30.8	C	27.5	C	32.0	C	31.9	C
10. Factory Outlet Ave/Mercantile Way	OWSC	8.7	A	8.9	A	8.8	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Source: LL&G, 2010.

TABLE 4.7-3
BACKGROUND ROADWAY SEGMENT CONDITIONS – 2013 NO PROJECT

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.45	A
Lenwood	Mercantile Way to Project Access	3U	21,000	0.13	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.12	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.10	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Background Freeway Segments

Volume to capacity ratios and LOS for background conditions in the year 2013 have been calculated for the study area freeway segments and are shown in **Table 4.7-4**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under background traffic conditions.

TABLE 4.7-4
BACKGROUND FREEWAY SEGMENT CONDITIONS – 2013 NO PROJECT

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to SR-58	3	6,900	0.446	0.337	B	B
SR-58 to Lenwood Road	4	9,200	0.273	0.206	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.380	0.351	B	B
I-15 Southbound						
L Street to SR-58	3	6,900	0.501	0.424	B	B
SR-58 to Lenwood Road	3	6,900	0.405	0.345	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.467	0.387	B	B

Notes: V/C = volume to capacity ratio
Source: LL&G, 2011.

Traffic Conditions Plus Alternative A

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative A was added to background year traffic volumes.

Background Plus Alternative A Intersection Operations

Table 4.7-5 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under background plus Alternative A traffic conditions with implementation of Alternative A. Weekday and Saturday peak hour turning volumes at each of the study intersections under background plus Alternative A traffic conditions are provided within the TIA (**Appendix H** of the Draft EIS/TEIR- Fig-7-2). With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS, except for the following intersection:

- Lenwood Rd./Project Access

Background Plus Alternative A Roadway Segment Operations

Volume to capacity ratios and LOS for the study area roadway segments have been calculated for the opening year of Alternative A opening year have been calculated for the study area roadway segments and are shown in **Table 4.7-6**. With implementation of Alternative A, all of the study roadway segments are projected to operate within an acceptable LOS under background plus Alternative A traffic conditions in the opening year 2013.

TABLE 4.7-5
BACKGROUND PLUS ALTERNATIVE A INTERSECTION CONDITION – OPENING YEAR 2013

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	12.9	B	11.9	B	13.4	B	12.0	B
2. Lenwood Rd./Main St.	TS	31.1	C	41.8	D	36.7	D	34.1	D
3. Main St./SR-58 EB Ramps	TS	4.0	A	4.4	A	4.7	A	4.5	A
4. Main St./SR-58 WB Ramps	TS	11.3	B	17.9	B	14.8	B	14.7	B
5. Lenwood Rd./I-15 SB Ramps	TS	13.1	B	13.1	B	13.6	B	14.2	B
6. Lenwood Rd./I-15 NB Ramps	TS	15.7	B	16.0	B	22.1	B	21.8	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	15.4	C	14.8	B	32.8	D	14.1	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.9	A	9.8	A	10.9	B	11.0	B
9. Lenwood Rd./Mercantile Way	TS	29.1	C	29.3	C	33.6	C	40.3	D
10. Lenwood Rd./ Project Access	OWSC	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.7	A	8.9	A	8.8	A	9.0	A

Notes: TS = traffic signal, OWSC = One-Way Stop Controlled
Bold indicates unacceptable LOS
Source: LL&G, 2010.

TABLE 4.7-6
BACKGROUND PLUS ALTERNAITVE A ROADWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.66	B
Lenwood	Mercantile Way to Project Access	3U	21,000	0.47	A
Lenwood	Project Access to Outlet Center Drive	2U	14,000	0.33	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.31	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Background Plus Alternative A Freeway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative A traffic conditions have been calculated for the study area freeway segments and are shown in **Table 4.7-7**. With implementation of

Alternative A, all of the study freeway segments are projected to operate within an acceptable LOS under background plus Alternative A traffic conditions in the opening year 2013.

TABLE 4.7-7
BACKGROUND PLUS ALTERNATIVE A FREEWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to SR-58	3	6,900	0.489	0.373	B	B
SR-58 to Lenwood Road		9,200	0.304	0.302	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.412	0.384	B	B
I-15 Southbound						
L Street to SR-58	3	6,900	0.550	0.467	B	B
SR-58 to Lenwood Road		6,900	0.458	0.454	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.488	0.417	B	B

Notes: V/C = volume to capacity ratio
Source: LL&G, 2011.

Traffic Signal Warrant Analysis

For background plus Alternative A traffic conditions in the opening year 2013, the study area intersections have been evaluated to determine the need for installation of traffic signals as specified in the California MUTCD (FHWA, 2004). A traffic signal is anticipated to be warranted under background plus Alternative A traffic conditions at the following study area intersection:

- Lenwood Road/Project Access

Ramp Diverge Operations

Ramp diverge operations is a measurement of the ability of a vehicle to enter lane one of a multi-lane roadway. Tables 1, 3, and 14 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis at I-15 NB/SB Off-Ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. The ramp diverge operations were determined to be greatest during the Sunday PM peak-hour. As shown in the Table 14 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would not exceed the County's significance threshold of LOS D; therefore, Alternative A would not have a significant adverse effect on ramp diverge operations at I-15 NB/SB off-ramps to Lenwood Road.

Intersection Queuing Operations

Tables 5, 7 and 16 of **Appendix Q** of the Final EIS/TEIR provide lane queuing length analysis at the I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. Based on the project trip

distribution, project trips were only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables there is sufficient capacity to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound off-ramps with or without Alternative A during the buildout year 2013 at the movements in which the project adds trips. The 50th and 95th percentile queue is defined to be the queue length (in vehicles) that has only a 50 percent and 5-percent, respectively, probability of being exceeded during the analysis time period.

The I-15/Outlet Center Road interchange is currently un-signalized. The Highway Capacity Software (HCS) is limited in its ability to measure the queuing results for un-signalized intersections. However, the Caltrans Highway Design Manual 2009 (HDM) provides direction for calculating queues at un-signalized intersections using storage length and number of vehicles per two-minute period per lane. An explanation and formula for this calculation is provided in **Appendix Q** of the Final EIS/TEIR. Tables 5, 7, and 16 provide a queuing analysis at the Outlet Center Drive Off-Ramp location. Based on the project trip distribution, project trips are only added to the I-15 NB Off-Ramp/Outlet Center Drive northbound right-turn movement. As shown in these tables, sufficient capacity is available to serve the buildout year 2013 traffic queues with and without Alternative A project traffic.

Alternative A would not have a significant adverse effect on traffic queuing at I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road.

Transit, Bicycle, and Pedestrian Facilities

Implementation of Alternative A may result in increased use of the Barstow Area Transit System. Through the terms of the MSA, the Tribe shall contribute funding to the City that would compensate for increased use of the City's public services. Increased public use of the Barstow Area Transit System is not anticipated to adversely impact existing service levels, and could contribute additional funding for the system.

No bicycle lanes or pedestrian sidewalks exist in the vicinity of the transportation study area for Alternative A. Alternative A is not projected to generate a substantial increase in bicycling activity or pedestrian trips. The City of Barstow Non-Motorized Circulation Plan identifies Lenwood Road east of I-15 and Main Street as potential future locations for Class I bikeways. However, with the addition of project-related traffic, the LOS along these roadways would remain within acceptable levels. Therefore, development of Alternative A would have no adverse effects on existing or planned bicycle or pedestrian facilities.

Summary of Traffic Impacts

The increase in traffic generated by Alternative A would not contribute to unacceptable traffic operations at any of the study intersections other than the Lenwood Road / Project Access intersection. Without mitigation, the Lenwood Road / Project Access intersection would operate at levels as low as LOS F (**Table 4.7-5**). Additionally, during peak hours there is the potential for southbound left-turns entering

the project site to spill over into the southbound through lane, which could result in queuing that could affect the ability of northbound vehicles to access existing business' driveways to the west (LL&G, 2010). Implementation of mitigation measures provided in **Section 5.7** would restore the Lenwood Road / Project Access intersection to satisfactory operations based City LOS standards; therefore, development of Alternative A would have minimum adverse effect on traffic and circulation.

4.7.3 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Site Access

Access to the project site is proposed via one driveway located along Lenwood Road approximately 300 yards south of the existing Hampton Inn Driveway. The project driveway would have full turning access to the project site and would satisfy the City's corner sight distance standards. The intersection of Lenwood Road / Project Access would be signalized when Caltrans warrants are met.

Construction Traffic

The temporary traffic generated during construction of Alternative B would be less than Alternative A because fill would not be exported from the site. Therefore, Alternative B would not result in significant adverse effects to traffic and circulation during construction.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative B is shown in **Table 4.7-8**. Methodology used to determine trip generation is described in detail in **Subsection 4.7.1**.

Diverted-link Trips

Trip generation calculated for Alternative B has been adjusted to consider the number of trips that already exist on the roadway network without the addition of the project. **Table 4.7-8** shows the net new trips added to the local roadway network under Alternative B after the diverted-link trip reduction. Trip methodology for determining diverted-link trips reduction is discussed under Alternative A.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative B, peak hour traffic counts of the existing directional distribution of traffic for areas in the vicinity of the project site and information on future development and traffic impacts in the area was reviewed. The distribution of new trips generated by Alternative B is identical to Alternative A and is provided in **Figure 4.7-1**.

Traffic Conditions Plus Alternative B

Refer to **Subsection 4.7.2** for a description of background traffic conditions for the Barstow study area. To assess the impacts of Alternative B on transportation facilities in the study area, the projected number of trips generated by this alternative was added to background traffic volumes.

TABLE 4.7-8
ALTERNATIVE B PEAK HOUR TRIP GENERATION

Proposed Land Use	Trips per unit	Weekday				Saturday			
		Mid-day		PM		Mid-day		PM	
		Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips	Trip Rate[1, 2]	Total Trips
Casino	164.4 KSF	3.95	654	4.95	813	6.90	1,134	6.90	1,134
Hotel	100 rooms	0.15	15	0.15	15	0.18	18	0.18	18
Drive-in Restaurant	5.86 KSF	11.52	67	11.15	66	14.07	83	14.07	83
Casino Diverted-link Trips (40%)[3]		__	*260*	__	*326*	__	*453*	__	*453*
Restaurant Diverted-link (20%)[4]		__	*14*	__	*13*	__	*17*	__	*17*
Total New Trips		__	**459**	__	**556**	__	**765**	__	**765**

[1]Casino trip generation rate based on Shingle Springs Rancheria Interchange Transportation Circulation Report dated April 2002.
[2] Hotel trip generation rate based on ITE Trip Generation Manual 8th Edition Rate with 75 percent reduction to account for internal trips between the hotel and casino.
[3] Casino diverted-link percentages are based on Shingle Springs Rancheria Interchange Transportation/ Circulation Report dated April 2002.
[4] Restaurant diverted-link percentages for high-turnover sit-down restaurants are based on SANDAG Not So Brief Guide to Vehicle Trip Generation Rates, April 2002.
KSF = thousand square feet.
Source: LL&G, 2010.

Background Plus Alternative B Intersection Operations

Table 4.7-9 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections under background plus Alternative B traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections under background plus Alternative B traffic conditions are provided within the TIA (**Appendix H** of the Draft EIS/TEIR). With the addition of project-related traffic, each of the study intersections is projected to operate at an acceptable LOS, except for the following intersection:

- Lenwood Rd./Project Access

TABLE 4.7-9
BACKGROUND PLUS ALTERNATIVE B INTERSECTION CONDITION – OPENING YEAR 2013

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	12.9	B	11.7	B	13.2	B	11.3	B
2. Lenwood Rd./Main St.	TS	31.0	C	41.4	D	36.4	D	34.1	D
3. Main St./SR-58 EB Ramps	TS	3.9	A	4.3	A	4.5	A	4.0	A
4. Main St./SR-58 WB Ramps	TS	11.3	B	17.9	B	14.8	B	14.7	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.7	B	12.9	B	13.2	B	12.5	B
6. Lenwood Rd./I-15 NB Ramps	TS	15.7	B	16.2	B	20.8	C	15.8	B
7. Outlet Center Dr./I-15 SB Ramps	OWSC	13.3	B	13.1	B	22.3	C	12.3	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.6	A	9.4	A	10.3	B	9.7	A
9. Lenwood Rd./Mercantile Way	TS	28.3	C	28.6	C	31.8	C	31.7	C
10. Lenwood Rd./Project Access	OWSC	27.8	D	**96.0**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.7	A	8.9	A	8.8	A	8.8	A

Notes: TS = traffic signal, OWSC = One-Way Stop Controlled
Bold indicates unacceptable LOS
Source: LL&G, 2010.

Background Plus Alternative B Roadway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative B traffic conditions have been calculated for the study area roadway segments and are shown in **Table 4.7-10**. With implementation of Alternative B, all of the study roadway segments are projected to operate within an acceptable LOS under background plus Alternative B traffic conditions in the opening year 2013.

TABLE 4.7-10
BACKGROUND PLUS ALTERNAITVE B ROADWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.60	B
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.38	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.27	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.25	A

Notes: D = divided roadway, U = undivided roadway; ADT = average daily trips; V/C = volume to capacity ratio
Source: LL&G, 2010.

Background Plus Alternative B Freeway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative B has been calculated for the study area freeway segments and is shown in **Table 4.7-11**. With implementation of Alternative B, all of the study freeway segments are projected to operate within an acceptable LOS under background plus Alternative B traffic conditions in the opening year 2013.

TABLE 4.7-11
BACKGROUND PLUS ALTERNATIVE B FREEWAY SEGMENT CONDITIONS – OPENING YEAR 2013

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to SR-58	3	6,900	0.487	0.371	B	B
SR-58 to Lenwood Road	4	9,200	0.302	0.232	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.404	0.375	B	B
I-15 Southbound						
L Street to SR-58	3	6,900	0.548	0.465	B	B
SR-58 to Lenwood Road	3	6,900	0.454	0.387	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.482	0.409	B	B

Notes: V/C = volume to capacity ratio
Source: LL&G, 2011.

Traffic Signal Warrant Analysis

For background plus Alternative B traffic conditions in the opening year 2013, the study area intersections have been evaluated to determine the need for installation of traffic signals as specified in the California MUTCD (FHWA, 2004). A traffic signal is anticipated to be warranted at the following study area intersection:

- Lenwood Road/Project Access

Ramp Diverge Operations

Tables 1, 3, and 14 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis at I-15 NB/SB Off-Ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. The ramp diverge operations were determined to be greatest during the Sunday PM peak-hour. As shown in the Table 14 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would not exceed the County's significance threshold of LOS D; therefore, Alternative B would not have a significant adverse effect on ramp diverge operations at I-15 NB/SB Off-Ramps to Lenwood Road.

Intersection Queuing Operations

Tables 5, 7, and 16 of **Appendix Q** of the Final EIS/TEIR provide a queuing analysis at I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. Based on the project trip distribution, project trips were only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables there is sufficient storage to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound Off-Ramps with or without Alternatives A during the buildout year 2013 at the movements in which the project adds trips.

Tables 5, 7, and 16 of **Appendix Q** of the Final EIS/TEIR provide a queuing analysis at the Outlet Center Drive Off-Ramp location. Based on the project trip distribution, project trips are only added to the I-15 NB Off-Ramp/Outlet Center Drive northbound right-turn movement. As shown in these tables, sufficient capacity is available to serve the buildout year 2013 traffic queues with and without project traffic.

Alternative B would not have a significant adverse effect on traffic queuing at I-15 NB/SB Off-Ramps to Lenwood Road and at I-15 NB/SB Off-Ramps to Outlet Center Road.

Transit, Bicycle, and Pedestrian Facilities

Impacts to the Barstow Area Transit system and to bicycle and pedestrian circulation would be similar to Alternative A. Refer to **Subsection 4.7.2**.

Summary of Traffic Impacts

The increase in traffic generated by Alternative B would not contribute to unacceptable traffic operations at any of the study intersections other than the Lenwood Road / Project Access intersection. As with Alternative A, the Lenwood Road / Project Access intersection would operate at levels as low as LOS F and would potentially affect the ability of northbound vehicles to access existing business' driveways to the west (LL&G, 2010). Implementation of mitigation measures provided in **Section 5.7** would restore the intersection to satisfactory operations based City LOS standards; therefore, development of Alternative B would have minimum adverse effect on traffic and circulation.

4.7.4 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Site Access

The main access point to the project site would utilize the existing driveway located on Camino San Ignacio Road. This approach is assumed to continue to operate as a full movement driveway with no turn limitations.

Construction Traffic

Traffic generated by construction of Alternative C would be less than operational traffic, which, as discussed below, does not lead to a decrease in LOS below established thresholds. In addition,

construction traffic is temporary; therefore, significant adverse effects associated with construction traffic would not occur.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative C is shown in **Table 4.7-12**. Methodology used to determine trip generation is described in detail in **Subsection 4.7.1**.

TABLE 4.7-12
ALTERNATIVE C PEAK HOUR TRIP GENERATION

Proposed Land Use	Weekday Mid-day			Weekday Evening			Saturday		
	In	Out	Total	In	Out	Total	In	Out	Total
Casino (25.0 KSF)									
Trip Rates	2.34	1.61	3.95	2.62	2.33	4.95	3.17	3.73	6.90
Trips Generated	59	40	99	66	58	124	79	93	172

Note: KSF = thousand square feet
Source: Kunzman, 2007.

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative C, the existing directional distribution of traffic for areas in the vicinity of the project site was reviewed. The distribution of new trips generated by Alternative C is provided in the Kunzman TIA provided in **Appendix H** of the Draft EIS/TEIR.

Background Traffic Conditions Without Project

Background Project Traffic Volumes

To assess background traffic conditions, existing traffic (described in detail in **Section 3.7**) is combined with area-wide growth. To account for area-wide growth, background traffic volumes have been calculated using a conservative two percent annual growth rate of existing traffic volumes over a three-year period. This growth rate for the Los Coyotes study area was obtained from the *Traffic Volumes on California State Highways* (Caltrans, 2005).

Background Intersection Operations

Table 4.7-13 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the Los Coyotes Site study intersections under background traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections under background traffic conditions are provided within **Appendix H** of the Draft EIS/TEIR.

TABLE 4.7-13
BACKGROUND INTERSECTION CONDITION

Intersection	Traffic Control[1]	Peak Hour Delay-LOS			
		Weekday		Saturday	
		Mid-Day	Evening	Mid-Day	Evening
1. SR-79/Stage Road	CSS	8.8-A	8.8-A	9.8-A	9.6-A
2. SR-79/Camino San Ignacio Road	CSS	9.0-A	8.8-A	9.6-A	9.0-A
3. SR-79/San Felipe Road	CSS	9.8-A	9.5-A	10.2-B	9.7-A
4. SR-79/SR-76	CSS	9.8-A	9.8-A	11.5-B	10.7-B

Notes: 1. TS = traffic signal, CSS = cross street stop
Source: Kunzman, 2007.

Background Project Roadway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative C have been calculated for the Los Coyotes study area roadway segments and are shown in **Table 4.7-14**. As shown in the table, the study roadway segment is projected to operate within an acceptable LOS under background traffic conditions.

TABLE 4.7-14
BACKGROUND ROADWAY SEGMENT CONDITION

Roadway	Segment	Number of Lanes[1]	Maximum Capacity (LOS D)	ADT[2]	V/C[3]	LOS
Camino San Ignacio Road	South of SR-79	2U	10,900	500	0.05	A

Notes: 1. U = undivided roadway
2. ADT = average daily trips
3. V/C = volume to capacity ratio
Source: Kunzman, 2007.

Traffic Conditions Plus Project

To assess the impacts of the project on transportation facilities in the study area, the projected number of trips generated by Alternative C was added to background traffic volumes.

Background Plus Alternative C Intersection Operations

Table 4.7-15 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the study intersections background plus Alternative C traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections under background plus Alternative C traffic conditions are provided in **Appendix H** of the Draft EIS/TEIR. With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS.

TABLE 4.7-15
INTERSECTION LOS PLUS ALTERNATIVE C

Intersection	Traffic Control[1]	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		Evening		Mid-Day		Evening	
1. SR-79/Stage Road	CSS	9.0	A	9.2	A	10.4	A	10.2	A
2. SR-79/Camino San Ignacio Road	CSS	9.6	A	9.8	A	11.7	A	10.6	A
3. SR-79/San Felipe Road	CSS	10.2	B	9.9	A	10.9	B	10.3	A
4. SR-79/SR-76	CSS	10.2	B	10.3	B	12.7	B	11.5	B

Notes: 1. TS = traffic signal, CSS = cross street stop
Source: Kunzman, 2007.

Background Plus Alternative C Roadway Segment Operations

Volume to capacity ratios and LOS for background plus Alternative C have been calculated for the Los Coyotes study area roadway segments and are shown in **Table 4.7-16**. With implementation of Alternative C, the study roadway segment is projected to operate within an acceptable LOS under background plus Alternative C traffic conditions.

TABLE 4.7-16
ROADWAY SEGMENT LOS PLUS ALTERNATIVE C

Roadway	Segment	Number of Lanes[1]	Maximum Capacity (LOS D)	ADT[2]	V/C[3]	LOS
Camino San Ignacio Road	South of SR-79	2U	10,900	1,500	0.14	A

Notes: 1. U = undivided roadway
2. ADT = average daily trips
3. V/C = volume to capacity ratio
Source: Kunzman, 2007

Traffic Signal Warrant Analysis

For background plus Alternative C traffic conditions, the study area intersections have been evaluated to determine the need for installation of traffic signals as specified in the California MUTCD (FHWA, 2004). Traffic signals are not anticipated to be warranted at any of the study intersections.

Transit, Bicycle, and Pedestrian Facilities

The Los Coyotes study area is not currently served by the San Diego Metropolitan Transit System or any other public transportation system. Therefore, implementation of Alternative C would not impact public transportation systems. Additionally, designated bikeway facilities or pedestrian sidewalks do not exist in the vicinity of the Los Coyotes site. Therefore, Alternative C would not adversely impact bicycle or pedestrian facilities.

Summary of Traffic Impacts

The increase in traffic generated by Alternative C would not result in an unacceptable LOS or warrant a traffic signal. Therefore, development of Alternative C would not result in significant adverse effects on traffic and circulation.

4.7.5 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Site Access

The main access point to the project site would utilize the existing driveway located on Camino San Ignacio Road. This approach is assumed to continue to operate as a full movement driveway with no turn limitations.

Construction Traffic

Construction related traffic impacts would be similar or less than Alternative C. Refer to **Subsection 4.7.6**.

Project Traffic

Trip Generation

The projected vehicle trip generation resulting from Alternative D is shown in **Table 4.7-17**. Alternative D is projected to generate approximately 47 weekday morning peak hour trips and 87 weekday evening peak hour trips. The trip generation rates used to calculate Alternative D trips were provided by the ITE *Trip Generation Manual*, 8th Edition, 2009 land use code 416.

TABLE 4.7-17
ALTERNATIVE D PEAK HOUR TRIP GENERATION

Proposed Land Use	Weekday AM			Weekday PM		
	In	Out	Total	In	Out	Total
Campground (213 Campsites)						
Trip Rates	0.09	0.13	0.22	0.25	0.16	0.41
Trips Generated	19.7	27.2	46.9	54.1	33.2	87.3
Source: ITE Trip Generation Manual, 8th Edition, 2009.						

Trip Distribution and Assignment

To determine the distribution of traffic generated by Alternative D, the existing directional distribution of traffic for areas in the vicinity of the project site was reviewed. The distribution of new trips generated by Alternative D is identical to Alternative C and is shown in the Kunzman TIA provided in **Appendix H** of the Draft EIS/TEIR.

Background Traffic Conditions

Refer to **Subsection 4.7.6** for a description of background traffic conditions for the Los Coyotes study area.

Background Plus Alternative D Traffic Conditions

Alternative D is projected to generate 87 trips during the weekday evening peak hour (**Table 4.7-15**), as compared to 124 trips for Alternative C (**Table 4.7-15**). Because Alternative D would generate fewer trips, traffic related effects are projected to be similar to, or less than those resulting from Alternative C. Refer to **Subsection 4.7.6**.

Background Plus Alternative D Intersection Operations

With the implementation of Alternative D, all of the study intersections in the Los Coyotes study area are projected to operate at an acceptable LOS, similar to Alternative C. Refer to **Subsection 4.7.6**.

Background Plus Alternative D Roadway Segment Operations

With implementation of Alternative D, the study roadway segment is projected to operate within an acceptable LOS under background plus Alternative D traffic conditions, similar to Alternative C. Refer to **Subsection 4.7.6**.

Traffic Signal Warrant Analysis

For background plus Alternative D traffic conditions, traffic signals are not anticipated to be warranted at any of the study intersections, similar to Alternative C. Refer to **Subsection 4.7.6**.

Transit, Bicycle, and Pedestrian Facilities

Impacts to transit, bicycle, and pedestrian facilities would be similar to Alternative C. Refer to **Subsection 4.7.6**.

Summary of Traffic Impacts

The increase in traffic generated by Alternative D would not result in an unacceptable LOS or warrant a traffic signal. Therefore, development of Alternative D would not result in significant adverse effects on traffic and circulation.

4.7.6 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.8 LAND USE

This section identifies the direct effects to land use that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.8**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.8**.

Assessment Criteria

Adverse effects would occur if development would be incompatible with adjacent designated land uses, thereby impeding effective local and regional planning efforts.

4.8.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Alternative A would result in approximately 23.1 acres of land being removed from the City of Barstow's (City) land use jurisdiction and placed into federal trust for the Tribe. Once the property is taken into trust, the only applicable land use regulations would be federal or Tribal. However, the Tribal Government desires to work cooperatively with local and state authorities on land use matters.

In furtherance of that goal, the Tribe has entered into a Municipal Services Agreement (MSA) with the City in which they have agreed to develop tribal projects occurring on trust lands in a manner that is consistent with the Barstow Municipal Code and to adopt building standards and codes no less stringent than those adopted by the City prior to the use of any structure (**Appendix D** of the Draft EIS/TEIR).

Land Use Plans

City planning documents currently in effect for the Barstow site include the City of Barstow General Plan, Lenwood Specific Plan, City of Barstow Zoning Ordinance, and the applicable Redevelopment Plan. The project site is located in an area designated as Commercial-Recreational/Transition in the Lenwood Specific Plan Boundary. Construction of the casino, hotel and associated amenities would not conflict with the planned recreational intent of the area.

Development standards incorporated into Alternative A would not substantially conflict with the City's standards including permitted uses, parking standards, outdoor storage and loading area requirements, utilities and lighting requirements, sign standards, architectural/building standards, and guidelines for accessory structures. These development standards would be integrated by the final design phase of Alternative A. Buildings would be set back at least 50 feet from Lenwood Road. Light fixtures would not extend above 30 feet in height, and the lighting would be designed to confine direct rays to the premises. Signage would be architecturally compatible with the buildings, and would be of appropriate size and content, in accordance with the guidelines set forth in the Lenwood Specific Plan. As shown in the architectural rendering, it is anticipated that the design materials and colors would be visually

appealing, of a neutral tone, and blend with the surrounding environment. Development of Alternative A would be generally consistent with local land use plans.

Effects to Existing Land Uses

The Barstow site consists of vacant and undeveloped land and there are no uses that would be disrupted by the construction of a casino/hotel resort. An open space recreational area, owned and managed by the Bureau of Land Management, is located east of the Barstow site. This area, known as the Stoddard Valley Off-Highway Vehicle (OHV) area, is used primarily for off-road vehicle recreation with motorcycles, all-terrain vehicles, and four-wheel drive vehicles. This area is also used for competitive racing events. Alternative A would not severely impact the OHV area, as commercial development consisting of a retail outlet mall already exists along its western boundary. The hotel component of the development would benefit large events at the OHV area. The OHV area is a vast expanse of land. Operation of the proposed casino-hotel complex would not preclude its use as a recreation area. Because noise and nighttime lighting are generated by the OHV area, it would be unaffected by any noise or light emitted by development of Alternative A.

Development surrounding the Barstow site to the north and west consists of hotels, restaurants, and outlet malls primarily serving as highway-related commercial uses. Alternative A would be complementary to these existing commercial uses. Lands to the south are designated as Commercial-Recreational/ Transition and thus would be developed in the future with uses compatible with the Barstow site. Alternative A would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses and thus would have a no adverse effects on existing land uses.

Agriculture

Alternative A is located on land designated for future commercial or recreational uses; it does not contain prime or unique farmlands, or farmland of statewide importance (**Appendix I** of the Draft EIS/TEIR). There are no issued or identified Williamson Act contracts on the Barstow site. Development of Alternative A would have no adverse effects on agriculture.

4.8.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

As with Alternative A, the Barstow site would be brought into trust and would not be subject to local land use jurisdiction; however, as described above the Tribe has agreed to develop tribal projects occurring on trust lands in a manner that is consistent with the Barstow Municipal Code and to adopt building standards and codes no less stringent than those adopted by the City prior to the use of any structure (MSA, **Appendix D** of the Draft EIS/TEIR). Like Alternative A, Alternative B would be located on the Barstow site and would consist of a casino-hotel resort development. Both alternatives are similar in use and design.

Land Use Plans

Due to the similarities between Alternatives A and B, the discussion under Alternative A regarding compatibility with the General Plan, Redevelopment Plan, and Zoning, apply to Alternative B. The Lenwood Specific Plan generally requires compatibility with the adjacent OHV areas and adequate provisions for water, sewer, electricity, gas, telephone, and storm drainage. With provision of public services discussed in **Section 4.9**, development of Alternative B would be generally consistent with local land use plans.

Effects to Existing Land Uses

Similar to Alternative A, Alternative B would have no adverse effects on existing land uses.

Agriculture

As discussed for Alternative A, the Barstow site does not contain designated farmland or Williamson Act contracts. Development of Alternative B would have no adverse effects on agriculture.

4.8.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

The Los Coyotes site is located on existing tribal trust property. It is not subject to San Diego County land use jurisdiction. The Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians has jurisdictional authority over land use matters on the Reservation.

Effects to Existing Land Uses

The Los Coyotes site is undeveloped and does not contain urban features or land uses which would be affected by development at the other sites. Surrounding the Los Coyotes site are undeveloped lands on the Los Coyotes Reservation. There is a considerable distance to both tribal and off-Reservation uses, the nearest of which are primarily rural residential. Alternative C would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. No adverse effects to existing land uses would occur.

Agriculture

As shown on the Farmland Conversion Impact Rating Form (Form AD-1006, **Appendix I** of the Draft EIS/TEIR), the Los Coyotes site contains 17 acres of prime farmland, unique farmland, or farmland of statewide or local importance and is subject to evaluation under the Farmland Protection Policy Act (FPPA). As indicated on the FCIR form, the Los Coyotes site has a combined land evaluation and site assessment score of 108. As discussed in the criteria developed pursuant to FPPA, "sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated" (7 CFR §658.4). There are no lands under a Williamson Act contract or agricultural uses on the Los Coyotes site. As all development would occur within the boundaries of the Reservation, no off-Reservation agricultural/forest land would be converted to non-agricultural/forest use as a result of Alternative C. Development of Alternative C would have no adverse effects to agricultural resources.

4.8.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

As discussed for Alternative D, the Los Coyotes site is located on existing tribal trust property and is not subject to San Diego County land use jurisdiction. The Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians has jurisdictional authority over land use matters on the Reservation.

Effects to Existing Land Uses

The Los Coyotes site is undeveloped and does not contain urban features or land uses which would be affected by development of campgrounds under Alternative D. Alternative D would not disrupt neighboring land uses, would not prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. As with Alternative C, Alternative D would have no adverse effects on existing land uses.

Agriculture

As discussed above, the Los Coyotes was evaluated using the FCIR Form (Form AD-1006, **Appendix I** of the Draft EIS/TEIR). As indicated on the FCIR form, the Los Coyotes site has a combined land evaluation and site assessment score of 108; therefore, no further consideration is required. There are no lands under a Williamson Act contract or agricultural uses on the Los Coyotes site. As all development would occur within the boundaries of the Reservation, no off-Reservation agricultural/forest land would be converted to non-agricultural/forest use as a result of Alternative D. Development of Alternative D would have no adverse effects to agricultural resources.

4.8.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potential adverse effects identified for Alternatives A though D are anticipated to occur.

4.9 PUBLIC SERVICES

This section identifies the effects to public services that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.9**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects are presented in **Section 5.9**.

Assessment Criteria

An adverse effect would occur if project-related demands on public services would cause an exceedance of system capacities that result in significant effects to the physical environment. The water supply and wastewater analysis presented herein relies on data presented in **Chapter 2.0**.

4.9.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Water Supply

Water demand for Alternative A would be approximately 140 gallons per minute (gpm) or 201,310 gallons per day (gpd) (See **Table 2-2**). Potable water demand estimates are based on the ratio of average water demand to average wastewater flows at similar facilities.

In accordance with Section 8 of the Municipal Service Agreement (MSA) between the Tribe and the City of Barstow (City), the Tribe would obtain potable supply from Golden State Water Company (GSWC). The GSWC wells in the Barstow Customer Service Area have a capacity of 16,147 acre-feet per year (ac-ft/yr) and had an average pumping rate from 2000 to 2004 of 9,556 ac-ft/yr, with a surplus capacity of approximately 6,591 ac-ft/yr (GSWC, 2005). The Barstow Customer Service Area has adequate capacity for the estimated water demands of the Alternative A, which are equivalent to approximately 225 ac-ft/yr. An existing 16-inch-diameter line that runs along the west side of Lenwood Road would be extended from its current termination point and connected to the proposed facilities. For fire flow, a fire pump and jockey pump would be located on-site to help maintain static pressure, as recommended by the Barstow Fire Protection District. With these pumps, no on-site storage tanks would be required. As GSWC has adequate supply, service can be provided to Alternative A without affecting existing customers and without the need to construct improvements to the existing system. Alternative A would not result in adverse effects to municipal water supply systems.

Wastewater Service

Wastewater demand was assessed using square footage and is based on typical values for similar facilities (See **Table 2-2**). Peaking factors were applied based on information collected from other gaming resorts in California. Alternative A would have an estimated average daily wastewater flow of 179,200 gpd and a peak day wastewater flow of 358,400. The recommended wastewater treatment plant (WWTP) capacity to accommodate peak day flow and unusually heavy wastewater flows that may occur during special events would be 375,000 gpd.

Consistent with Section 7 of the MSA, wastewater service for Alternative A would be provided by the City's WWTP. Currently the WWTP plant serving the City has a treatment capacity of 4.5 million gallons per day (mgd) and a peak flow of approximately 2.7 mgd (Barbour, 2009). There is adequate surplus capacity to accommodate peak (0.35 mgd) wastewater flows from Alternative A (**Table 2-2**). The existing 10-inch-diameter sewer line would be extended from the intersection of Lenwood Road and Mercantile Way to the Barstow site. The Contract/Project Coordinator for the City's WWTP would determine if upgrades to sewer truck lines and/or pump stations would be required. In accordance with Section 7 of the MSA between the Tribe and the City, the Tribe would pay the cost of constructing sewer infrastructure, if needed, to serve the project. A discussion of the potential indirect effects of Alternative A is provided in **Section 4.14.1**. Alternative A would not result in adverse effects to municipal wastewater services.

Solid Waste Service

Construction

Construction of Alternative A would result in a temporary increase in waste generation. The waste stream would consist of excess construction materials and excavated fill. Waste that cannot be recycled would be disposed of at the Barstow Landfill, which accepts construction/demolition materials. Excavated fill material would be reused at other construction sites to the extent possible. In the most extreme case, no users would require the fill and it would be disposed of and used as cover for the Barstow Landfill. As discussed below, the Barstow landfill has sufficient capacity to accept the 71,296 cubic feet of excavated soil, which would represent 0.6 percent of the permitted daily intake. Construction of Alternative A would not result in significant adverse effects on solid waste services.

Operation

The California Integrated Waste Management Board (CIWMB) has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative A is anticipated to have 1,309 full-time employees. Amusement and recreation developments are estimated to generate 0.9 tons per employee per year while hotels are estimated to generate 2.1 tons per employee per year (CIWMB, 2007a). As Alternative A would include both gaming and hotel uses, it is anticipated that the estimated amount of solid waste would be between these generation rates or between 1,178 and 2,748 tons per year (3.2 and 7.5 tons per day, respectively). Bins would be provided for recycling within the proposed facilities.

As discussed in Section 9 of the Tribe's MSA, the Tribe would utilize the City's contracted solid waste disposal company. The City's franchised solid waste collection company hauls waste to the Barstow Landfill (Barbour, 2006). Solid waste from Alternative A would represent approximately 0.42 percent - 1.00 percent of the landfill's current permitted daily intake. When the landfill is expanded, Alternative A would represent approximately 0.21 percent – 0.50 percent of the landfills expected permitted daily intake. Alternative A's projected solid waste generation is considered a small contribution to the waste stream and would not dramatically decrease the life expectancy of the landfill. Alternative A would not affect County diversion goals as waste generated on tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section**

5.3, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative A would not result in significant adverse effects on solid waste services.

Energy

The Tribe has agreed in Section 8 of the MSA that there shall be no on-site generation of electricity except for emergency power purposes. Electricity would be obtained from Southern California Edison Company (SCE), which maintains electrical lines along the northern boundary of the Barstow site. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative A.

Gas service would be provided by Southwest Gas Corporation, which maintains a 4-inch-diameter line along Lenwood Road (Merrell Engineering Company, 2003). This line may need to be upgraded to provide service to Alternative A. The Tribe would pay a fair share of the improvement costs necessary to service the Barstow site. Service to existing customers would not be affected as the Tribe would coordinate with Southwest Gas Corporation. Alternative A would not result in significant adverse effects on energy services.

Law Enforcement Services

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.6**. In accordance with Section 4 of the Tribe's MSA, the City would provide police services including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes (**Appendix D** of the Draft EIS/TEIR). The police department would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. Additionally, an increase in service demands to the State Highway Patrol may result from development of the project. However, payments to the State under the Tribal-State compact would offset any impacts to the State Highway Patrol. The Tribe would employ security personnel and provide surveillance throughout the proposed facilities. As discussed in Section 4 of the MSA, security personnel would work cooperatively with the City Police Department. The Tribe would make payments to the City to cover the costs of impacts associated with increased police services. The Tribe has also agreed in Section 4 of the MSA, upon request of the City, to dedicate land for fire and police station use and pay for a portion of new fire and police stations. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative A would not result in significant adverse effects on law enforcement services.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites.

Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative A would not result in significant adverse effects on fire protection and emergency medical services during construction. Specific BMPs presented in **Section 5.9** would further reduce identified adverse effects.

Operation

Alternative A would increase the number of visitors in the project area, which would result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative A would likely be emergency medical response calls, but could also include structure fires or hazardous materials response. The fire protection facilities on-site would be fitted with automatic fire sprinkler systems. Twenty-four-hour surveillance would afford timely detection of fires and early intervention of any fires. As recommended by the Barstow Fire Protection District (BFPD) a fire pump and jockey pump would be located on-site to help maintain static pressure.

As agreed upon in the Tribe's MSA with the City, BFPD would provide fire protection and emergency medical services to the Barstow site (**Appendix D** of the Draft EIS/TEIR). In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for the purchase of a fully equipped Emergency Medical Services Response Vehicle which shall be housed at Station 363 for the first two years of resort operations. To respond more effectively to high-rise emergencies at any structure on trust lands between one and four stories, the Barstow Fire Protection District has agreed to relocate its ladder fire truck from Station 361 to Station 363 for the first two years of resort operation, as identified in Section 4(B)(2) of the MSA. The Barstow Fire Protection District and the City have advised that a ladder truck is not typically used to fight fires on buildings more than four stories in height and that buildings over four stories in height require entry by Fire Department personnel and personal action at the burning site. If a structure exceeding four stories in height is constructed by the Tribe on trust lands, the Tribe has agreed to pay one half of the actual costs of training fire personnel. In Section 4(C) of the MSA, the Tribe has also agreed to dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. This dedicated land will be used by the City to construct new fire and police stations when, and if, deemed necessary by the City in its sole discretion.

The nearest emergency room is located at the Barstow Community Hospital at 555 South 7th Avenue in Barstow. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative A would not result in significant adverse effects on fire protection and emergency medical services.

4.9.2 ALTERNATIVE B – BARSTOW REDUCED CASINO- HOTEL COMPLEX

Water Supply

A water and wastewater feasibility study determined that the water demand for Alternative B would be approximately 92 gpm or 132,810 gpd (**Table 2-4**), approximately 34 percent less than Alternative A. Potable water demand estimates are based on the ratio of average water demand to average wastewater flows at similar facilities.

In accordance with Section 8 of the MSA between the Tribe and the City, the Tribe would obtain their potable supply from GSWC. The GSWC wells in the Barstow Customer Service Area have a surplus capacity of approximately 6,591 ac-ft/yr (GSWC, 2005). The Barstow Customer Service Area has adequate capacity for the estimated water demands of Alternative B, which are equivalent to approximately 148 ac-ft/yr. An existing 16-inch-diameter line that runs along the west side of Lenwood Road would be extended from the current termination point and connected to the proposed facilities. As with Alternative A, it is recommended that a fire pump and jockey pump are located on-site to help maintain static pressure. With these pumps, no on-site storage tank would be required. As GSWC has adequate supply, service can be provided to Alternative B without affecting existing customers and without the need to construct improvements to the existing system. Alternative B would not result in adverse effects to municipal water supply systems.

Wastewater Service

Wastewater demand was assessed using square footage and is based on typical values for similar facilities (**Table 2-4**). Alternative B would have an estimated average daily wastewater flow of 118,200 gpd and a peak day wastewater flow of 236,400 gpd. The recommended wastewater treatment capacity to accommodate peak day flow and unusually heavy wastewater flows that may occur during special events would be 250,000 gpd, approximately one third less than Alternative A.

Consistent with Section 7 of the MSA, wastewater service for Alternative B would be provided by the City's WWTP. The WWTP serving the City currently has a treatment capacity of 4.5 mgd. The daily wastewater flow is approximately 2.7 mgd with a peak flow of 3.2 mgd. There is adequate surplus capacity to accommodate peak (0.23 mgd) wastewater flows from Alternative B. The existing 10-inch-diameter sewer line would be extended from the intersection of Lenwood Road and Mercantile Way to the Barstow site. The City's planning department and engineering department would determine if upgrades to sewer truck lines and/or pump stations would be required. In accordance with Section 7 of the MSA between the Tribe and the City, the Tribe would pay the cost of constructing sewer infrastructure, if needed, to serve the project. As the City has adequate wastewater treatment capacity, they could provide service to Alternative B without affecting existing customers. Alternative B would not result in adverse effects on municipal wastewater services.

Solid Waste Service

Construction

Construction of Alternative B would result in a temporary increase in waste generation, to a lesser extent than Alternative A. Since there is no underground parking under Alternative B, there would be no excavated fill material to dispose of at the landfill or offsite locations. The waste stream would consist only of excess construction materials. Waste that cannot be recycled would be disposed of at the Barstow Landfill, which accepts construction/demolition materials. Construction of Alternative B would not result in significant adverse effects on solid waste services.

Operation

The CIWMB has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative B is anticipated to have 1,038 full-time employees. Amusement and recreation developments are estimated to generate 0.9 tons per employee per year while hotels are estimated to generate 2.1 tons per employee per year (CIWMB, 2007a). As Alternative B would include both gaming and hotel uses, it is anticipated that the estimated amount of solid waste would be between these generation rates or between 934 and 2,179 tons per year (2.5 and 5.9 tons per day, respectively).

In accordance with Section 9 of the MSA, the Tribe would utilize the City's contracted solid waste disposal company. Waste would be hauled to the Barstow Landfill. As with other developments, bins would be provided for recycling. Solid waste from Alternative B would represent approximately 0.13 percent to 0.78 percent of the landfill's current permitted daily intake. When the landfill is expanded, Alternative B would represent approximately 0.16 percent to 0.39 percent of the expected permitted daily intake. Alternative B's projected solid waste generation is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfill. Alternative B would not affect County diversion goals as tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section 5.3**, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative B would not result in significant adverse effects on solid waste service.

Energy

Consistent with the MSA, electricity for Alternative B would be obtained from SCE, which maintains electrical lines along the northern boundary of the Barstow site. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative B.

Gas service would be provided by Southwest Gas Corporation, which maintains a 4-inch-diameter line along Lenwood Road (Merrell Engineering Company, 2003). This line may need to be upgraded to service Alternative B. The Tribe would pay a fair share of the improvement costs necessary to service the Barstow site. Service to existing customers would not be affected, as the Tribe would coordinate with

Southwest Gas Corporation. Alternative B would not result in significant adverse effects on energy services.

Law Enforcement Services

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.6**. While there is no definitive link between casinos and crime it is anticipated that that the increased concentration of people that Alternative B would bring to the Barstow area would lead to an increase in the number of service calls for local law enforcement.

Impacts to law enforcement may include an increased need for services, including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes. The Barstow site would be served by the City police department. The police department would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. Security presence would deter some crimes and security personnel would work cooperatively with the City Police Department. As with Alternative A, the Tribe would make payments to the City to cover the costs of impacts associated with increased police services, and has agreed to dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative B would not result in significant adverse effects on law enforcement services.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites. Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative B would not result in significant adverse effects on fire protection and emergency medical services during construction. Specific BMPs presented in **Section 5.9** would further reduce adverse effects to fire protection and emergency medical services.

Operation

Alternative B would increase the number of visitors in the area, which would result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative B would likely be emergency medical assists but could also include structure fires or hazardous materials response. The facilities would be fitted with automatic fire sprinkler systems. Twenty-four-hour surveillance would afford timely detection of fires and early intervention of any fires. A fire pump and jockey pump would be located on-site to help maintain static pressure as recommended by the BFPD.

In accordance with the MSA, the BFPD would provide fire protection and emergency medical services to Alternative B. In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for

the purchase of a fully equipped Emergency Medical Services Response Vehicle which shall be housed at Station 363 for the first two years of resort operations. To respond more effectively to high-rise emergencies at any structure on trust lands between one and four stories, the BFPD has agreed to relocate its ladder fire truck from Station 361 to Station 363 for the first two years of resort operation, as identified in Section 4(B)(2) of the MSA. The BFPD and the City have advised that a ladder truck is not typically used to fight fires on buildings more than four stories in height and that buildings over four stories in height require entry by Fire Department personnel and personal action at the burning site. If a structure exceeding four stories in height is constructed by the Tribe on trust lands, the Tribe has agreed to pay one half of the actual costs of training fire personnel. In Section 4(C) of the MSA, the Tribe has also agreed to dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. This dedicated land will be used by the City to construct new fire and police stations when, and if, deemed necessary by the City in its sole discretion.

The nearest emergency room is the Barstow Community Hospital. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative B would not result in significant adverse effects on fire protection and emergency medical services.

4.9.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Water Supply

A water and wastewater feasibility study determined that the water demand for Alternative C would be approximately 7 gpm (**Table 2-6**). Water would be supplied by a new well on the reservation. It is anticipated that groundwater would be encountered at 150 to 350 feet, and would be sufficient to supply the recommended 7 gpm for this alternative. Due to the amount of water used by Alternative C and adequate distance from municipal water systems, development of Alternative C would have no adverse effects on municipal water systems.

Wastewater Service

Wastewater demand for Alternative C was assessed using square footage and is based on typical values for similar facilities (**Table 2-6**). Alternative C would have an estimated average daily wastewater flow of 8,900 gpd and a peak day wastewater flow of 17,800 gpd. The recommended wastewater treatment capacity to accommodate peak day flow and unusually heavy wastewater flows that may occur during special events flows is 20,000 gpd. Since no municipal sewer service is available in the area, the Tribe proposes to construct an on-site membrane bioreactor (MBR) WWTP with a capacity of 20,000 gpd. Tertiary treatment utilizing an MBR would be used, so that the treated wastewater could be recycled. Wastewater would be disposed of through a subsurface disposal system that includes drip irrigation used in landscaping and a disposal area beneath the parking lot. As the Tribe would provide on-site wastewater treatment, development of Alternative C would have no adverse effects on municipal wastewater systems.

Solid Waste Service

Construction

Construction of Alternative C would result in a temporary increase in waste generation. The waste stream would consist of excess construction materials. Waste that cannot be recycled would most likely be disposed of at the Ramona Landfill, which accepts construction/demolition materials. Construction of Alternative C would not result in significant adverse effects on solid waste services.

Operation

The CIWMB has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative C is anticipated to have 105 employees. Amusement and recreation developments are estimated to generate 0.9 tons per employee per year. The estimated disposal rate from Alternative C is 94.5 tons per year or 0.26 tons per day.

Under this alternative, the Tribe would contract with Ramona Disposal for solid waste collection. Waste is taken to the Ramona Landfill, the Otay Landfill, and the Sycamore Sanitary Landfill. The maximum permitted capacity of the landfills is 295, 5,830, and 3,965 tons per day, respectively. Solid waste from Alternative C would represent approximately 0.005 percent of Ramona Landfill's permitted daily intake, 0.00004 percent of the Otay Landfill's permitted daily intake, and 0.00006 percent of the Sycamore Sanitary landfill's permitted daily intake. As with other developments, bins would be provided for recycling. Alternative C's projected solid waste generation is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfills used by Ramona Disposal. Alternative C would not affect County diversion goals as tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section 5.3**, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative C would not result in significant adverse effects on solid waste services.

Energy

Electricity would be obtained from San Diego Gas and Electric, which currently supplies the southwest portion of the Reservation. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative C.

There is no natural gas service to the Reservation. Propane, which is distributed locally by several companies, would be utilized at the proposed facilities. The nearest distributors are located in Borrego Springs. Deliveries would be made once or twice per week, depending on the size of the on-site storage tank. Alternative C would not result in significant adverse effects on energy services.

Law Enforcement Services

An analysis of the impact of casino gambling on local crime rates is included in **Section 4.6**. While there is no definitive link between casinos and crime it is anticipated that that the increased concentration of people that Alternative C would bring to the Los Coyotes site would lead to an increase in the number of service calls for local law enforcement.

Impacts to law enforcement may include an increased need for services, including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes. The Los Coyotes site would be served by the San Diego Sheriff's Department, which would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280. Security presence would deter some crimes and would work cooperatively with the Sheriff's Department. A development of this size is not likely to produce high equipment or personnel demand however it may affect the existing level of service. As discussed in **Subsection 2.2.3**, the Tribe would be willing to negotiate appropriate compensation to San Diego County for services provided to Alternative C. Mitigation within Section 5.9 would require that the Tribe make a good faith effort to enter into an agreement with San Diego County to address the increased demand on law enforcement services. With mitigation, development of Alternative C would not result in significant adverse effects on law enforcement services.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites. Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative C would not result in significant adverse effects on fire protection and emergency medical services during construction. Specific BMPs presented in **Section 5.9** would further reduce adverse effects.

Operation

As described in **Section 2.2.3**, all construction associated with Alternative C would be in accordance with the International Building Code, which includes fire prevention criteria. Alternative C would increase the number of visitors in the area, which would result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative C would likely be emergency medical assists but could also include structure fires, wild land fires or hazardous materials response. The Tribe would receive fire protection and emergency medical services from California Department of Forestry and Fire Protection (CDF) through an existing agreement with the BIA, and Sunshine Summit Volunteers. CDF would provide primary services and is located approximately 10 miles from the Los Coyotes site. Additional demands to fire protection and emergency medical services would not be offset by property tax or development fees. As described in **Section 5.9**, a technical report including a critical incident tasking/staffing analysis shall be conducted to ensure that the appropriate type and number of equipment and trained personnel are available to provide fire services to the site. The Tribe would

negotiate appropriate compensation to San Diego County for services provided to the casino development based on the outcome of this study. A development of this size is not likely to produce high equipment or personnel demand however it may affect the existing level of service.

The nearest emergency room is Palomar Medical Center in Escondido, which is approximately 55 miles from the Los Coyotes site. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. With the implementation of mitigation included in **Section 5.9**, development of Alternative C would not result in significant adverse effects on fire protection and emergency medical services.

4.9.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Water Supply

A water and wastewater feasibility study determined that the water demand for Alternative D would be approximately 5 gpm (**Table 2-6**). Water would be supplied by a new well on the reservation. It is anticipated that groundwater would be encountered at 150 to 350 feet, and would be sufficient to supply the recommended 5 gpm for this alternative. Due to the amount of water used by Alternative D and adequate distance from municipal water systems, development of Alternative D would have no adverse effects on municipal water systems.

Wastewater Service

Wastewater demand for Alternative D was assessed using square footage and is based on typical values for similar facilities (**Table 2-6**). Alternative D would have an estimated average daily wastewater flow of 6,400 gpd and a peak day wastewater flow of 9,600 gpd. The recommended wastewater treatment capacity to accommodate flows is 10,000 gpd. Since no municipal sewer service is available in the area, the Tribe proposes to construct an on-site MBR WWTP with a capacity of 10,000 gpd. Tertiary treatment utilizing an MBR would be used, so that the treated wastewater could be recycled. Wastewater would be disposed of through a subsurface disposal system. As the Tribe would provide on-site wastewater treatment, development of Alternative D would have no adverse effects on municipal wastewater systems.

Solid Waste Service

Construction

Construction of a campground at the Los Coyotes site would result in a temporary increase in waste generation. The waste stream would consist of excess construction materials. Waste that cannot be recycled would most likely be disposed of at the Ramona Landfill, which accepts construction/demolition materials. Construction of Alternative D would not result in significant adverse effects on solid waste services.

Operation

The CIWMB has established waste generation rates for the operation of different business types and residences. The rate is expressed as tons per employee per year. Alternative D is anticipated to have 8

employees. Camping developments are estimated to generate 2.1 tons per employee per year. Alternative D has an estimated disposal rate of 16.8 tons per year or 0.05 tons per day.

Under this alternative, the Tribe would contract with Ramona Disposal for solid waste collection. Waste is taken to the Ramona Landfill, the Otay Landfill, and the Sycamore Sanitary Landfill. The maximum permitted capacity of the landfills is 295, 5,830, and 3,965 tons per day, respectively. Solid waste from Alternative D would represent approximately 0.0002 percent of Ramona Landfill's permitted daily intake, 0.000008 percent of the Otay Landfill's permitted daily intake, and 0.00001 percent of the Sycamore Sanitary landfill's permitted daily intake. Alternative D's projected solid waste generation is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfills used by Ramona Disposal. Alternative D would not affect County diversion goals as tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics (CIWMB, 2007b). Furthermore, as described in **Section 5.3**, a Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures. Operation of Alternative D would not result in significant adverse effects on solid waste service.

Energy

Electricity would be obtained from San Diego Gas and Electric, which currently supplies the southwest portion of the Reservation. Under this alternative, electricity would be provided to an office and restroom facility. It is anticipated that these facilities could be served by the existing electrical line on the Reservation.

There is no natural gas service to the Reservation. Propane, which is distributed locally by several companies, may be used to provide heat to the office,. The nearest distributors are located in Borrego Springs. Deliveries would be made as needed, depending on the size of the on-site storage tank. The use of propane would not affect municipal natural gas providers. Alternative D would not result in significant adverse effects on energy services.

Law Enforcement Services

Impacts to law enforcement would be minimal but may include increased patrol operations, response to emergency 911 calls, and general investigation for major crimes. The Los Coyotes site would be served by the San Diego Sheriff's Department, which would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280. It is anticipated that the Sheriff's Department could provide service to Alternative D with existing personnel and equipment. Alternative D would not result in significant adverse effects on law enforcement services. As discussed in **Subsection 2.2.4**, the Tribe would be willing to negotiate appropriate compensation to San Diego County for services provided to Alternative D.

Fire Protection and Emergency Medical Services

Construction

During construction, equipment used for grading and construction activities may create sparks which could ignite dry grass. This risk is similar to those that are found at other construction sites. Environmental protection measures like ensuring all dried vegetation is cleared away from staging and building areas where spark-producing equipment would be employed to reduce the potential risk of fire. Development of Alternative D would not result in significant adverse effects on fire protection and emergency medical services during construction. The aspects of overall project design and the specific BMPs presented in **Section 5.9** would further reduce adverse effects.

Operation

As described in **Section 2.2.3**, all construction associated with Alternative D would be in accordance with the International Building Code, which includes fire prevention criteria. Alternative D would increase the number of visitors in the area, which could result in the need for increased fire protection and emergency medical services. Most service calls generated from Alternative D would likely be emergency medical assists but could also include structure fires, wild land fires, or hazardous materials response. The Tribe would receive fire protection and emergency medical services from CDF through an existing agreement with the BIA and Sunshine Summit Volunteers. CDF would provide primary services and is located approximately 10 miles from the Los Coyotes site. As described in **Section 5.9**, a technical report including a critical incident tasking/staffing analysis shall be conducted to ensure that the appropriate type and number of equipment and trained personnel are available to provide fire services to the site. The Tribe would negotiate appropriate compensation to San Diego County for services provided to Alternative D. Development of campgrounds is not likely to produce high equipment or personnel demand.

The nearest emergency room is Palomar Medical Center in Escondido, which is approximately 55 miles from the Los Coyotes site. Emergency medical services including ambulance transport and emergency room care are provided by private businesses and usually paid for by the person requiring emergency medical care. Development of Alternative D would not result in significant adverse effects on fire protection and emergency medical services. The aspects of overall project design and recommended measures presented in **Section 5.9** would further reduce adverse effects.

4.9.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.10 NOISE

This section identifies the direct effects to noise that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.10**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.10**.

Assessment Criteria

Adverse noise related effects would occur if implementation would result in a substantial permanent increase in the ambient noise environment, or if construction or operation would result in an increase in ambient noise level at sensitive receptor locations. See **Section 3.10** for a definition of sensitive receptors.

Federal Noise Abatement Criteria

The FHWA establishes Noise Abatement Criteria (NAC) for various land uses which have been categorized based upon activity. Land uses are categorized on the basis of their sensitivity to noise, as indicated in **Table 4.10-1**. **Table 4.10-1** provides standards which may be considered applicable to the project sites and alternatives. The standard for the Barstow site would fall under Activity Category E for exterior land uses, because the nearest sensitive noise receptor is a motel (refer to **Section 3.10**). The Los Coyotes site would fall under Activity Category A, because the land use surrounding the site is rural in nature.

State and Local Noise Standards

The Hazards Element of the City of Barstow's General Plan (General Plan, 1996) provides community noise equivalence level (CNEL) noise standards based on land use types. These noise standards have been incorporated into the City of Barstow Noise Ordinance, which determine noise violations within the City limits. The noise standards provided in the General Plan are derived from the *Guidelines for the Preparation and Content of Noise Elements of the General Plan*, California Department of Health, Office of Noise Control, February 1976. The state and local noise standard for a motel (nearest sensitive noise receptor) is 65 CNEL for the exterior and 45 CNEL for the interior of a motel.

Table 4.10-1

FEDERAL NOISE ABATEMENT CRITERIA HOURLY A-WEIGHTED SOUND LEVEL DECIBELS \1\[1]

Activity Category	Activity Criteria \2\[2] Leq (h), dBA[3]	Evaluation Location	Activity Category Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B \3\[4]	67	Exterior	Residential
C \3\[4]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E \3\[4]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, shipyards, utilities (water resources, water treatment, electricity), and warehousing.
G	--	--	Undeveloped lands that are not permitted

[1] \1\Either Leq(h) or L10(h) (but not both) may be used on a project.
[2] Hourly A-weighted sound level, decibels (dBA).
[3] \2\ The leq() and l10(h) Activity Criteria values are for impacts determination only, and are not design standards for noise abatement measures.
[4] \3\ Includes undeveloped lands permitted for this activity category.
Source: FHWA, 2010.

4.10.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Construction

During the construction phase of Alternative A, noise from construction would dominate the noise environment in the immediate area. Equipment used for construction would generate noise levels as

indicated in **Table 4.10-2**. Maximum noise levels from different types of equipment under different operating conditions could range from 70 to 90 decibels (dBA) at a distance of 50 feet. The most noticeable project-generated construction noise source would be truck traffic associated with transport of heavy materials, equipment, and export of excavated materials. Construction activities would be temporary in nature and would generally occur between the hours of 7:00 am and 6:00 pm. Mitigation is provided in **Section 5.10** which would limit the schedule of construction activities and provide engineering controls to reduce construction noise. Because of the temporary and intermittent nature of construction activities, and distance of major construction activities to the nearest sensitive noise receptor (a motel located approximately 600 feet to the west), with mitigation, Alternative A would not result in significant adverse effects associated with noise due to construction.

TABLE 4.10-2
TYPICAL CONSTRUCTION NOISE LEVELS

Type of Equipment	Maximum Noise Level, dBA at 50 feet
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoes	85
Pneumatic Tools	85
Source: BBA, 2004	

Operation

On-site Noise

Alternative A would result in onsite operational noise, primarily from parking lot activity, use of fans for heating, ventilation, and air conditioning (HVAC), truck loading and unloading, and tour bus idling and parking.

Parking

Noise due to traffic in parking lots is limited by low speeds and is not expected to represent a substantial source of noise. It is typical for a passing car in a parking lot to produce a maximum noise level of 60 to 65 dBA at a distance of 50 feet, which is comparable to the level of a raised voice. Human activity in parking lots can produce noise, including talking, yelling, and the opening and closing of car doors, car alarms, stereos, and trunks. Such activities can occur at any time, but frequently occur in the mid-day and evening peak hours. The noise levels associated with these activities cannot be precisely defined because of variables such as number of parking movements and the time of day.

The parking areas for Alternative A surround the proposed buildings. Maximum noise levels at the nearest noise receptors due to cars moving in the parking lot would range between 40 and 50 dBA. The average noise levels would be lower than the ambient noise level due to the distance to the nearest receptor. The increase in ambient noise level at the nearest sensitive receptor from parking activities would not be audible; thus, no adverse effect would occur.

HVAC

The greatest potential for noise impacts from HVAC equipment would occur if fans or similar equipment were located near sensitive receptors. The HVAC units would be situated on the roof of the facilities, over 600 feet from the nearest receptor, and at that distance would not be audible. Operation of the HVAC system would not result in any adverse effects on the ambient noise level.

Truck Loading and Unloading

Although delivery trucks would be moving at low speeds, engine noise from these trucks has the potential to be audible at nearby sensitive noise receptors. Loading/unloading activities can have an adverse effect if sensitive receptors are in close proximity to delivery trucks serving the proposed facilities. Loading docks would be located adjacent to the facilities, and would be more than 600 feet from the nearest noise-sensitive receptor. Maximum noise levels due to truck movements at the loading docks would be in the range of 48 to 53 dBA, without accounting for the shielding that would be provided by the proposed facilities. The facilities are surrounded by commercial and retail outlets, which receive truck deliveries daily. Noise exposure from deliveries to the facilities would not audibly increase ambient noise level of approximately 45 to 55 dBA. Truck loading and unloading would not result in a significant adverse effect on the ambient noise level.

Tour Buses

The noise level associated with the idling of a modern diesel bus can be as high as 65 dBA at 50 feet. Therefore, tour buses parked and idling on the Barstow site could be an additional source of noise if allowed to idle for long periods adjacent to noise receptors. However, mitigation measure provided in **Section 5.10** would prohibit lengthy idling time.

Tour buses in the parking lot would have a minimal adverse effect on the ambient noise level. Due to the distance of Alternative A to the nearest sensitive receptor, with proposed mitigation development of Alternative A would not result in significant adverse effects related to onsite operational noise.

Off-site Noise

Traffic

The level of traffic noise depends on three things: l) the volume of the traffic, 2) the speed of the traffic, and 3) the number of trucks in the flow of the traffic. It is not anticipated that speed in the vicinity of the project or the mix of trucks in the traffic would change; however, traffic volumes would increase as a result of the project. Because noise is measured on a logarithmic scale, 70 dBA plus 70 dBA does not equal 140 dBA. Instead, two sources of equal noise added together have been found to result in an increase of 3 dBA. Therefore, a doubling of the traffic volume would result in a 3 dBA increase in the ambient noise level, while a tripling of the traffic volume would result in a 5 dBA increase in the ambient noise level (Caltrans, 2009a).

The greatest project related increase in traffic relative to existing levels would occur on Lenwood Road. Other roadways would experience increases in traffic; however, the only noise sensitive receptors in the vicinity of the traffic increases are along Lenwood Road. Alternative A would add an estimated 2,960 daily trips along Lenwood Road from the project site to Outlet Center Drive, which has an existing daily volume of 1,610 vehicles (LLG, 2010). The noise level along Lenwood Road with the additional traffic attributable to Alternative A would increase approximately 4.5 Leq dBA to an ambient level of 69.5 Leq dBA at a distance of 50 feet from the centerline of the roadway (Caltrans, 2009a). Sensitive noise receptors on Lenwood Road consist of one motel located approximately 100 feet south of the roadway centerline. Ambient noise levels as a result of Alternative A traffic on Lenwood Road would not exceed the FHWA exterior noise threshold of 72 Leq, dBA for motel land uses.

Using Caltrans conversion factors, the ambient noise level would be 69.4 CNEL dBA at a distance of 50 feet from the centerline of the roadway (Caltrans, 2009a). Given that the nearest sensitive receptor is located 100 feet from the roadway centerline and traffic noise levels attenuate at a rate of 4 to 6 dBA per doubling of distance, and there is a brick wall surrounding the outdoor recreation area that would further attenuate noise levels, the CNEL at the nearest sensitive receptor would be approximately 64.4 CNEL dBA, which does not exceed the City of Barstow's noise standard of 65 CNEL. Therefore, traffic generated by Alternative A would not exceed the federal, state, or local noise standards. A less than significant adverse effect to the noise environment would occur.

4.10.2 ALTERNATIVE B – BARSTOW REDUCED CASINO- HOTEL COMPLEX

Construction

Construction under Alternative B would be similar to construction under Alternative A. Construction noise impacts could have an adverse effect if construction activities occurred at night; however, mitigation is provided in **Section 5.10** which would limit the schedule of construction activities and provide engineering controls on equipment noise. Because of the temporary and intermittent nature of construction activities and distance of major construction activities to the nearest sensitive noise receptor, with mitigation measures significant adverse effects due to construction of Alternative B would not occur.

Operation

On-site Noise

Alternative B would result in on-site operational noise, primarily from parking lot activity, use of fans for HVAC, truck loading or unloading, and tour bus idling. The onsite operational noise would be similar to Alternative A as land uses would be the same, though to a lesser extent due to the decreased intensity of Alternative B; therefore, significant adverse effects to ambient noise levels due to on-site noise sources would not occur.

Off-site Noise

Traffic

As discussed in Alternative A Lenwood Road would have the greatest increase in the ambient noise level. Alternative B would add estimated 2,140 daily trips along Lenwood Road from the project site to Outlet Center Drive, which has an existing daily volume of 1,610 vehicles (TIA, 2010). The noise level along Lenwood Road with the additional traffic attributable to Alternative B would be 68.7 Leq dBA 50 feet from the centerline of the roadway, an increase of 3.7 Leq dBA (Caltrans, 2009a). Ambient noise levels as a result of Alternative B traffic on Lenwood Road would not exceed the FHWA exterior noise threshold of 72 Leq, dBA for motel land uses.

Using Caltrans conversion factors, the ambient noise level would be 68.6 CNEL dBA at a distance of 50 feet from the centerline of the roadway (Caltrans, 2009a). Given that the nearest sensitive receptor is located 100 feet from the roadway centerline and traffic noise levels attenuate at a rate of 4 to 6 dBA per doubling of distance, and there is a brick wall surrounding the outdoor recreation area that would further attenuate noise levels, the CNEL at the nearest sensitive receptor would be approximately 63.6 CNEL dBA, which does not exceed the City of Barstow's noise standard of 65 CNEL. Therefore, traffic generated by Alternative B would not exceed the federal, state, or local noise standards. A less than significant adverse effect to the noise environment would occur.

4.10.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Construction

During the construction phase of Alternative C, noise from construction would dominate the noise environment in the immediate area. Equipment used for construction would generate noise levels as indicated in **Table 4.10-2**. Maximum noise levels from different types of equipment under different operating conditions could range from 70 to 90 dBA at a distance of 50 feet. The most noticeable project-generated construction noise source would be truck traffic associated with transport of heavy materials and equipment. Construction activities would be temporary in nature, typically occurring between the hours of 7:00 am and 6:00 pm. Because of the temporary nature of construction and the isolation of the project site, significant adverse effects on the ambient noise level would not occur.

Operation

On-site Noise

Alternative C would result in onsite operational noise, primarily from parking lot activity, use of fans for HVAC, truck loading or unloading areas, and tour bus parking.

Parking

Parking lot noise, including vehicle traffic and human activity, for Alternative C would be similar to Alternatives A. The parking areas for Alternative C surround the proposed facilities. There are no noise-

sensitive receptors within two miles of the project site. Significant adverse effects to the ambient noise level would not occur with the implementation of Alternative C.

HVAC

The greatest potential for noise impacts from HVAC equipment would occur if fans or similar equipment were located near sensitive receptors. The casino would be equipped with roof-mounted HVAC units. These would be located near the casino, which would be located at least two miles from the nearest noise receptor. There would be a minimal adverse effect to the ambient noise level with the implementation of Alternative C.

Truck Loading and Unloading

Although delivery trucks would be moving at low speeds, engine noise could be audible to people nearby. Loading/unloading activities can have an adverse effect if sensitive receptors are in close proximity to delivery trucks serving the proposed facilities. Loading docks would be located adjacent to the casino building, at least two miles from the nearest noise-sensitive receptors; therefore, loading dock noise would not be audible at the nearest noise-sensitive receptor. Significant adverse effects to the ambient noise level would not occur with the implementation of Alternative C.

Tour Buses

The noise level associated with the idling of a modern diesel bus can be as high as 65 dBA at 50 feet. Therefore, tour buses parked on the Los Coyotes site could be a source of noise if allowed to idle for long periods, causing noise levels to exceed normally acceptable limits. However, the nearest sensitive receptor is at least two miles away from the parking lot. The onsite operational noise would not be considered a significant adverse effect, due to the distance to the nearest sensitive receptor.

Off-site Noise

Traffic

Operation of the gaming facility would result in vehicle traffic to and from the Los Coyotes site. As identified in the TIA, vehicles would enter the site via Camino San Ignacio Road (**Appendix H** of the Draft EIS/TEIR). Camino San Ignacio Road connects directly to SR-79, which is the closest state highway to the project site. The closest noise sensitive receptors are residences located approximately 50 feet from Camino San Ignacio Road. Noise levels due to increased traffic volumes have the potential to increase the ambient noise level in the vicinity of roadways. The greatest volume of traffic generated by Alternative C is on Camino San Ignacio Road (TIA, **Appendix H** of the Draft EIS/TEIR). Given the rural nature of the project vicinity, the ambient noise level is estimated to be 45 dBA (refer to **Section 3.10.3**, Los Coyotes Site). The existing volume of traffic on Camino San Ignacio Road near SR-76 is approximately 47 vehicles per peak-hour (TIA, **Appendix H** of the Draft EIS/TEIR). Project related traffic would approximately triple the existing traffic volume along Camino San Ignacio Road to 146 vehicles per hour; thus, increasing the ambient noise level by 5 dBA to 50 dBA (Caltrans, 2009). The ambient noise level as a result of Alternative C traffic on Camino San Ignacio Road would not exceed the

FHWA exterior noise threshold of 67 Leq, dBA for residential land uses. The project traffic would not have a significant adverse effect on the ambient noise level.

4.10.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Due to the isolated area of the Los Coyotes site, as well as the minimal construction requirements and low traffic volume associated with the development of a reservation campground, development of Alternative D noise emitting sources would be limited to human interaction and equipment, such as stereos and other noises associated with human gatherings. Noise associated with increased traffic on Camino San Ignacio Road would be less than would occur under Alternative C due to Alternative D generating less traffic. Implementation of Alternative D would not result in significant adverse effects to the surrounding ambient noise environment.

4.10.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.11 HAZARDOUS MATERIALS

This section identifies the direct effects to hazardous materials that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.11**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.11**.

Assessment Criteria

Adverse effects regarding hazardous materials management would occur if construction and operation would result in hazardous materials exposures to the population at large, increase the potential for hazardous materials incidents, or result in the release of hazardous materials to the environment.

4.11.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exist on the site. Although not anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would further minimize or eliminate adverse effects.

During grading and construction the use of hazardous materials would include substances such as gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. These materials would be used for the operation and maintenance of equipment, and directly in the construction of the facilities. Fueling and oiling of construction equipment would be performed daily. The most likely hazardous materials releases would consist of fuels, oil, and grease dripping from construction equipment. The small quantities of fuel, oil, and grease that could drip from construction equipment usually occur in relatively low toxicity and concentration. Typical construction Best Management Practices (BMPs) limit and often eliminate the effect of such accidental releases. Specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these measures, Alternative A would not result in significant adverse effects associated with hazardous materials during construction.

Operation

As described in **Chapter 2.0**, diesel fuel storage tanks would be needed for the operation of emergency generators at the casinos and fire pumps at the hotels. Fuel tanks would be housed above ground within the individual generator units. The storage tanks would have double walls with integrated leak detection systems. If a leak were to occur within the inner tank, the outer tank would contain the leak, while a pressure sensor would signal the leak on the indicator panel of the generator unit. Generator units would

be monitored by security personnel who would be on site at all times and trained in emergency response procedures. The generators would be located in areas easily accessed by maintenance and emergency personnel, near the service entrance/loading docks. These self-contained diesel fuel storage tanks would reduce the likelihood of release of a hazardous material.

During operation of the proposed facilities, the majority of waste produced would be non-hazardous. The small quantities of hazardous materials that would be utilized would include motor oil, hydraulic fluid, solvents, cleaners, lubricants, paint, and paint thinner. These materials would be utilized for the operation and maintenance of the casino, emergency generators, and other project facilities. The amount and type of hazardous materials that would be generated are common to commercial sites and do not pose unusual storage, handling, or disposal issues. Materials would be stored, handled, or disposed of according to state, federal, and manufacturer's guidelines.

As discussed in **Chapter 2.0**, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.2 Alternative B – Barstow Reduced Casino-Hotel Complex

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exist on the site. Although not anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would further minimize or eliminate adverse effects.

The amount and type of hazardous materials that would be stored, used, and generated during the construction of Alternative B are the same as those described under Alternative A. As discussed in **Subsection 4.11.1** above, BMPs for the storage and handling of hazardous materials are provided in **Section 5.11**. Adherence to these BMPs would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects. With these measures, Alternative B would not result in significant adverse effects associated with hazardous materials during construction.

Operation

The amount and type of hazardous materials that would be stored, used, and generated during operation of Alternative B are the same as those described under Alternative A. Refer to **Subsection 4.11.1**.

As discussed in **Subsection 4.11.1** above, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exist on the site. Although not anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would minimize or eliminate adverse effects.

Hazardous materials used during construction would be similar to those described under Alternative A, although on a smaller scale due to the reduced size of this alternative. Refer to the discussion under **Subsection 4.11.1**.

Operation

The onsite wastewater treatment plant would require the delivery, storage, and use of hazardous materials, particularly the use of sodium hypochlorite (HSe, 2007). Sodium hypochlorite (bleach) is used in wastewater treatment, in household laundry detergents, and in photochemical and pulp and paper industries. Sodium hypochlorite ingestion can cause severe gastrointestinal corrosion. Inhalation can cause pulmonary edema. For the wastewater treatment plant, a weak (five percent strength) solution of sodium hypochlorite would be used to clean or inhibit biogrowth in the immersed membranes used to filter out solids. Sodium hypochlorite would be stored in a 55-gallon drum, within a chemical spill containment area inside the wastewater treatment plant building. The sodium hypochlorite would be pumped directly to a chemical dip tank when required for use.

Diesel fuel storage tanks would be needed for the operation of emergency generators at the casino. These tanks would be operated and maintained in a similar fashion to those for Alternative A. Refer to the diesel fuel storage tanks discussion under **Subsection 4.11.1**.

Hazardous materials that would be stored, used, and generated during operation of Alternative C would be similar to those described under Alternative A, although on a smaller scale due to the reduced size of this alternative. Refer to **Subsection 4.11.1**.

As discussed in **Subsection 4.11.1** above, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Construction

There is no known hazardous materials contamination on the project site. The possibility exists that undiscovered contaminated soil and/or groundwater exists on the Alternative D site. Although not

anticipated, construction staff could encounter contamination during construction-related earth moving activities. This could pose a risk to human health and/or the environment. The unanticipated discovery of contaminated soil and/or groundwater could have an adverse effect. The recommended measures presented in **Section 5.11** would further minimize or eliminate adverse effects.

Hazardous materials used during construction would be similar to those described under Alternative A, although on a smaller scale due to the reduced size and decreased intensity of this alternative. Refer to the hazardous materials discussion under **Subsection 4.11.1**.

Operation

The onsite wastewater treatment plant would be operated in a similar fashion to the one for Alternative C. Refer to the wastewater treatment discussion under **Subsection 4.11.3**.

Hazardous materials that would be stored, used, and generated during operation of Alternative D would be similar to those described under Alternative A, although on a smaller scale due to the reduced size of this alternative. Refer to **Subsection 4.11.1**.

As discussed in **Subsection 4.11.1** above, BMPs have been incorporated into the project design to reduce the potential for inadvertent release of hazardous materials. The specific BMPs presented in **Section 5.11** would minimize the risk of inadvertent release and, in the event of a contingency, minimize adverse effects.

4.11.5 Alternative E – No Action

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.12 AESTHETICS

This section identifies the direct effects associated with aesthetics that would result from the development of each alternative described in **Chapter 2.0**. Effects are measured against the environmental baseline presented in **Section 3.12**. Cumulative and indirect effects are identified in **Section 4.13** and **Section 4.14**, respectively. Measures to mitigate for adverse effects identified in this section are presented in **Section 5.12**.

Assessment Criteria

Adverse effects to local and regional aesthetic values would occur if implementation would result in the inability for adjacent parcels to comply with local policies, degrade or diminish the aesthetics of visual resources such as scenic vistas, or introduce lighting that would substantially increase nighttime lighting in the area of existing conditions.

4.12.1 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

Local Plans and Ordinances

According to the Municipal Services Agreement (MSA) between the City of Barstow and the Tribe, the Tribe shall adopt building standards and codes no less stringent than those adopted by the City. Development of Alternative A would generally conform to the guidelines contained in the Lenwood Specific Plan, as mandated by the MSA. Landscaping would be consistent with the climate and surroundings of the project area. Light fixtures would not extend above the roofline of the taller buildings, and the lighting would be designed to confine direct rays to the premises. Signage associated with Alternative A would be architecturally compatible with the buildings, and would be of appropriate size and content, in accordance with the guidelines set forth in the Lenwood Specific Plan. Development of Alternative A will be generally consistent with local plans and ordinances.

Visual Resources

An architectural rendering is provided as **Figure 2-5**. The development of Alternative A amidst the combination of commercial uses and undeveloped desert lands in the vicinity of the Barstow site would represent a change to the viewshed, and would be visible from several vantage points. The existing commercial/industrial development would serve to reduce the intensity of Alternative A's visual impact on the area, and as described above, the hotel and casino complex would be designed to create positive visual effects. Alternative A has been designed to avoid architectural features that may be especially incompatible with a non-urban setting. No local or state-designated scenic corridors would be affected by the implementation of Alternative A. Development of Alternative A would not result in significant adverse effects on visual resources.

SHADOW, LIGHT, AND GLARE

The existing commercial/industrial development adjacent to the site is a substantial source of light in the project area. Therefore, new lighting proposed under Alternative A would not result in significant adverse effects on shadow, light, and glare. Project design and recommended measures presented in **Section 5.12** would further minimize identified adverse effects.

4.12.2 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

Local Plans and Ordinances

As indicated under Alternative A, above, development of Alternative B would generally conform to the guidelines contained in the Lenwood Specific Plan.

Visual Resources

As with Alternative A, the existing commercial/industrial development would serve to reduce the intensity of Alternative B's visual impact on the area. Development of Alternative B would not have a significant adverse effect on visual resources.

Shadow, Light, and Glare

Potential adverse effects associated with shadow, light, and glare from Alternative B would be similar to Alternative A. Project design and recommended measures presented in **Section 5.12** would further minimize or eliminate all identified adverse effects.

4.12.3 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

Local Plans and Ordinances

Because aesthetic matters at the Los Coyotes site are under the jurisdiction of the Los Coyotes Tribal Council, development of Alternative C would have no adverse effects relating to local plans and ordinances.

Visual Resources

The development of Alternative C on the Los Coyotes site would represent a change to the viewshed. The only views of the casino would be from within the Los Coyotes Reservation. The casino would not be visible from other locations. No adverse effects to visual resources would occur.

Shadow, Light, and Glare

Alternative C would add a new source of light to the area, constituting moderate adverse effects on shadow, light, and glare. The aspects of overall project design and recommended measures presented in **Section 5.12** would further reduce identified adverse effects.

4.12.4 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

Local Plans and Ordinances

Because aesthetic matters at the Los Coyotes site are under the jurisdiction of the Los Coyotes Tribal Council, development of Alternative D would have no adverse effects relating to local plans and ordinances.

Visual Resources

The development of Alternative D on the Los Coyotes site would represent a change to the viewshed. The only views of the campground would be from within the Los Coyotes Reservation. The campground would not be visible from other locations. No adverse effects to visual resources would occur.

Shadow, Light, and Glare

Alternative D would add a new source of light to the area; however, the amount of light generated by the campground would be considerably less than for Alternative C. Alternative D would not result in significant adverse effects on shadow, light, and glare. The aspects of overall project design and recommended measures presented in **Section 5.12** would further minimize or eliminate all identified adverse effects.

4.12.5 ALTERNATIVE E – NO ACTION

Under the No Action Alternative, a change in the current land use of the Barstow and Los Coyotes sites is not reasonably foreseeable. None of the potentially adverse effects identified for Alternatives A through D are anticipated to occur.

4.13 CUMULATIVE EFFECTS

4.13.1 INTRODUCTION

Cumulative effects are defined as effects to the environment resulting from the incremental effect of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

A cumulative effects analysis broadens the scope of analysis to include effects beyond those attributable solely to the implementation of the alternatives. The purpose of the cumulative effects analysis, as stated by the Council on Environmental Quality (CEQ) "is to ensure that federal decisions consider the full range of consequences" (CEQ, 1997a:3). The process of analyzing cumulative effects, or impacts, requires consideration of cumulative effects issues in each of the traditional components of the Environmental Impact Statement (EIS), including scoping, describing the affected environment, and determining environmental consequences. The incorporation of cumulative effects analysis also aids in the development of alternatives and appropriate mitigation measures.

The analysis in this section considers the incremental effects of the project alternatives on specific resources, ecosystems, and human communities that could occur in conjunction with other reasonably foreseeable actions, projects, and trends. As recommended by CEQ's *Considering Cumulative Effects*, only those potential cumulative effects that are considered to be relevant or consequential have been discussed in depth (CEQ, 1997a:12).

4.13.2 ALTERNATIVE A – BARSTOW CASINO-HOTEL COMPLEX

List of Potentially Cumulative Actions and Projects

Table 4.13-1 provides a list of the major development projects within the vicinity of the Barstow site that are under construction or reasonably foreseeable at the time of analysis. These projects were determined based on consultation with local government agencies, including the City of Barstow. **Figure 4.13-1** identifies the locations of these development projects in relation to the project site. The proposals total 4990 development units (du) and 1748.1 thousand square feet (ksf) of development.

Land Resources

The principal effects to land resources associated with countywide development would be localized topographical changes and soil attrition. Topographic changes may be cumulatively significant if the topography contributes significantly to the environmental quality with respect to drainage, habitat, or other values. Soil loss could be cumulatively considerable if the project alone would not result in significant loss of topsoil, but taken together with all other developments may result in significant depletion of available soils. Local permitting requirements for construction would address regional geotechnical and topographic conflicts, seismic hazards, and resource extraction availability. It is anticipated that approved developments will follow appropriate permitting procedures. As discussed in

TABLE 4.13-1
CUMULATIVE DEVELOPMENT IN BARSTOW

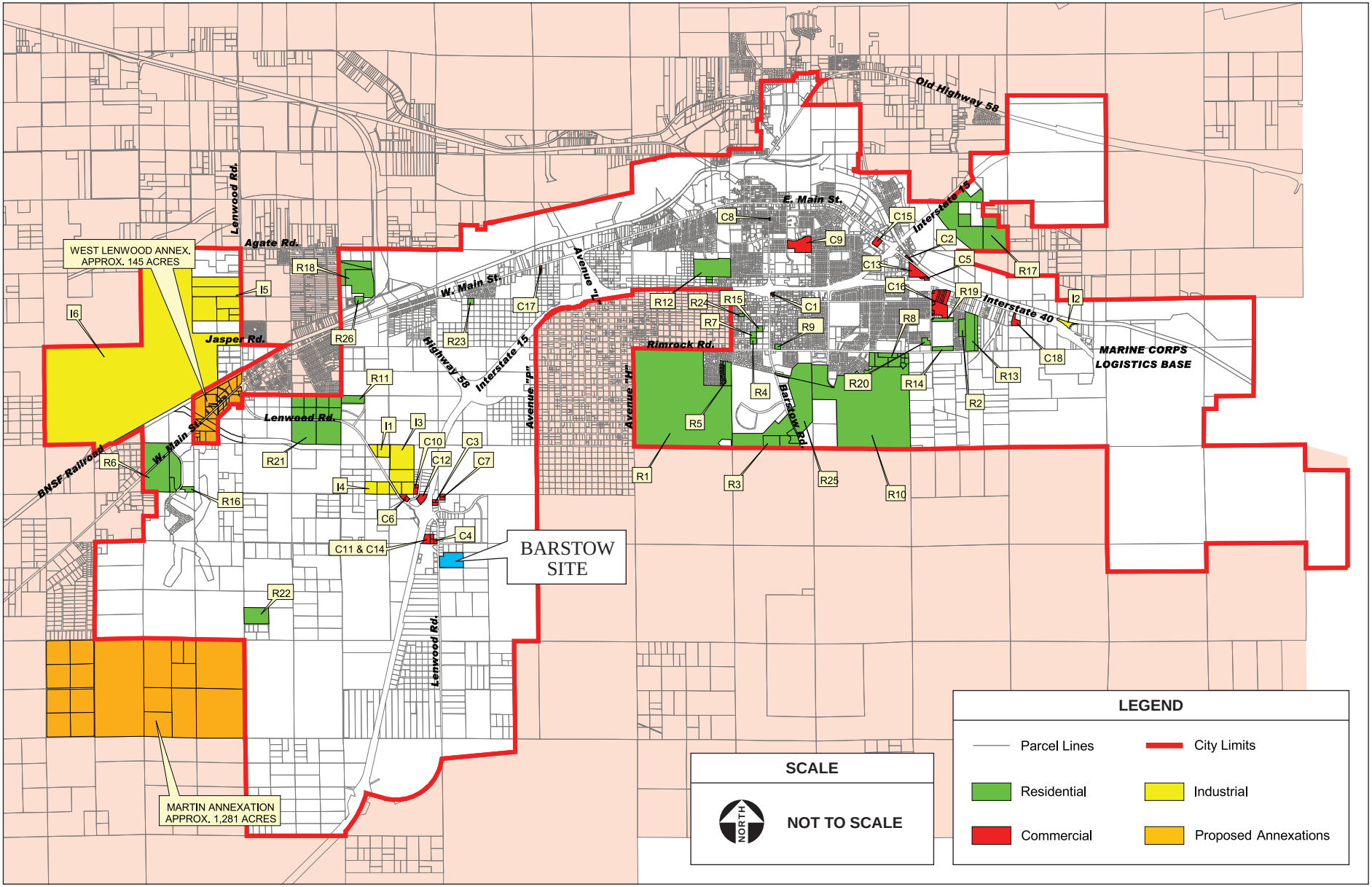
Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
R1	*Rimrock Ranch Specific Plan*	This 557-acre subdivision proposes to revise the Rimrock Specific Plan to allow for an increase from the approved maximum of 1,450 dwelling units to a maximum of 1,850 dwelling units. Within this proposal is the request for approval of approximately 360 single family units on approximately 557.64 acres. This development would be located east of Avenue "H," south of Rimrock Road, west of Agrita Avenue, and north of the City Limits.	1,850 DU	--
R2	*MGM Development*	This 7.75-acre proposal would develop approximately 44 single-family residential units. The development would be located south of Amory Road, north of Rimrock Road, east of Arbor Way and along the northerly extension of Granada Hills Avenue.	44 DU	--
R3	*A & A Surveying & Mapping/CF Properties*	This 76.64-acre proposal would develop approximately 20 acres into single- and multi-family residential units, with the balance a solar field. The development would be located west of Barstow Road, north of the City Limits, east of Agrita Avenue, and south of the Barstow Community College.	279 DU	--
R4	*Mark A. Nourse*	This 2.5-acre proposal would develop approximately 10 residential units. The development would be located along the south side of Cypress Street between Pine Avenue and Buckthorn Drive.	10 DU	--
R5	*The Highlands*	This 18.25-acre proposal would develop approximately 71 single-family residential units. The development would be located west of Agarita Avenue, east of Garnet Avenue, and south of Rimrock Road.	21 DU	--
R6	*Robert Merrit*	This 36.62-acre proposal would develop multi-family residential development, a condominium, and rental apartment subdivision of a planned seniors' community at the southwest and northwest corners of West Main Street and Country Club Drive		
R7	*Tim McCandless*	This 0.26-acre proposal would develop approximately 10 single-family residential units. The development would be located north of Cypress Street, east of Pine Avenue, and west of Buckthorn Drive.	10 DU	--
R8	*Rimrock Associates*	This 40.02-acre proposal would develop approximately 154 lots from five parcels for future single-family residential development. The development would be located south of Rimrock Road and west of the City Limits.	154 DU	--
R9	*Mark Heldreth*	This 2.13-acre proposal would develop approximately 8 single-family residential units. The development would be located at 561 Rimrock Road.	8 DU	--
R10	*Century Village*	This 478.79-acre proposal would develop approximately 450 residential units. The development would be located south of Zion Drive, east of Monterey Avenue, west of Opal Avenue, and north of Veterans Parkway.	450 DU	--

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
R11	*Lynn Potter and Dianna Powell*	This 12.04-acre proposal would construct 29 single-family residential units. The development would be located north of Tortoise Road and west of Industrial Way. Proposed solar field may replace 24 proposed single-family residences.	29 DU	--
R12	*Corman-Leigh Communities, Inc.*	This 46.11-acre proposal would develop approximately 178 single-family residential units. The development would be located west of Mount Vernon Avenue, south of Thomson Elementary School, Henderson Elementary School, and north of Interstate 15.	178 DU	--
R13	*Desert Skys, LLC and Sun Ridge CA, LLC*	This 31.23-acre proposal would develop approximately 133 single-family residential units. The development would be located north of Rimrock Road, south of Armory Road, and east of Granada Hill Avenue.	133 DU	--
R14	*Reigel Properties*	This 5.26-acre proposal would add 45 spaces to an existing mobile home park. The development is located south of 701 Montara Road, west of Arbor Way, and north of Rimrock Road.	45 DU	--
R15	*Project Properties Number One, LLC*	This 2.5-acre proposal would develop approximately 11 single-family residential units. The development would be located south of Windy Pass, east of Buckthorn Avenue, west of Wisteria Avenue, and north of Cypress Street.	11 DU	--
R16	*Merrell-Johnson Engineering for Dennis Rasmussen*	This 3.86-acre proposal would develop 12 single-family residential units. The development would be located east of Country Club Drive, south of Sweeten Lane, and west of Gerrymander Road.	12 DU	--
R17	*Pacific Holt Corporation*	This 150.55-acre proposal would develop a 301 single-family residential subdivision. The development would be located south of Soapmine Road, west of Webster Road, east of Interstate 15, and north of the Mojave River.	301 DU	--
R18	*Stephen A Carter for Hillcrest Development*	This 68-86-acre proposal would develop 219 single-family residential units. The development would be located west of Jasper Road, east of Cedar Road, and south of Agate Road.	219 DU	--
R19	*Global Premier Development/AMG for Nouri Shahram*	This 4.97-acre proposal would develop a 73-unit apartment complex. The development would be located east of Montara Road and south of Armory Road. (Calico Apartments)	73 DU	--
R20	*Global Premier Development/AMG for Hank & Shirley Barto*	This 3.7-acre proposal would develop a 73-unit apartment complex. The development would be located west of Montara Road and north of Rimrock Road.	73 DU	--
R21	*Cambridge Homes, Inc. for Dora Land*	This 156-acre proposal would amend the Lenwood Specific Plan to allow for residential development. The development would be located west of Tortoise Road, north of San Bernardino County Flood Control Channel, south of 4th Street and east of Elizabeth Street.	456 DU	--

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
R22	*Hall & Foreman Inc. for Nehemas Imperio et. Al.*	Subdivide one 26.7-acre parcel into four lots (for ownership purposes only – no development is proposed at this time). The parcel is located east of Melody Avenue, west of Cynthia Avenue, and north of Daniels Road	--	--
R23	*Project Property Number One*	Subdivide one 2.5 acre parcel into four lots. No development is proposed at this time. The parcel is at the southeast corner of Norwich Avenue and the logical extension of Woodhill Avenue.	--	--
R24	*Adrian Rodriguez*	Subdivide one 1.25 acre parcel into 3 lots. No development is proposed at this time. The parcel is on 1110 Madrona Drive	--	--
R25	*Harrison Development*	This 83-acre proposal would revise the General Plan land use designation of the project parcels from Neighborhood Residential (RN) and Neighborhood Residential/Specific Plan (RN/SP) to RN and Mixed Use (MU), to revise the zoning designation from Mixed Land Use (MU) to Single-Family Residential (RS-6) and MU. The proposal would also develop approximately 379 single-family residential units.	379 DU	--
R26	*Barstonian Apartments*	Expansion of an existing 96 unit apartment complex on a 4.07-acre parcel by an additional 60 units. The complex is located at 3325 Jasper Road north of Jasper Road and west of Citrine Road	60 DU	--
C1	*Anil Mohan*	This 0.91-acre proposal would develop a fast food restaurant with two drive through-lanes. The development would be located at Barstow Road and Deseret Avenue, south of Interstate 15.	--	3 KSF
C3	*Khurshid Chohan and Ashka Patel/Imran Patel*	This 2.12-acre proposal would develop an approximately 103-room hotel. The development would be located at 2600 Fisher Boulevard. (La Quinta Hotel)	103 DU	53.5 KSF
C4	*Ino Cruz and Larry Webster*	This proposal would develop two drive-through restaurants on an existing 2.97 acre parcel with an existing auto service center, gas station, convenience store, and car wash. The parcel is located at the northwest corner of Lenwood Road and Tanger Way.	--	5.8 KSF
C5	*HCP Engineering/DKN Hotels*	This proposal would construct one additional porte-cochere at an existing motel on a 1.68 acre parcel at 1984 East Main Street	--	--
C6	*Dan Plies*	This proposal would expand the existing gas station on the 1.1-acre parcel at 2596 Commerce Parkway to include a truck stop.	--	10.3 KSF

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
C8	*Anthony Leonard*	This 0.30-acre proposal would develop a six unit office building. The development would be located at 307 Barstow Road.	--	6.4 KSF
C9	*Barstow Community Hospital*	This 19.7-acre proposal would develop a new hospital with a total of 118,400 square feet at buildout. The development would be located on the south side of East Mountain View Street and along the east side of South Seventh Street.	--	118.4 KSF
C10	*Dan Plies*	This 3.3-acre proposal would develop a 92-unit hotel. The development would be located at 2550 Commerce Parkway.	92 DU	58.5 KSF
C13	*KO Architects for TT Group, Inc.*	This proposal would demolish a portion of an existing mall to build a new 6.700 square foot retail building and renovate the existing buildings on the 13.74-acre parcel at 1876 E. Main Street. This would be a net reduction in square footage.	--	-15 KSF
C15	*JWDA Architect & May Garden and Associates, LLC*	This proposal would develop a new fast food restaurant (Yoshinoya's Drive-Thru Restaurant) with drive through. The development would be located at 1520 E. Main Street.	--	2.9 KSF
C16	*Walmart Real Estate Business Trust*	This proposal would subdivide 10 parcels into 9 different lots, a total of 28.23 acres, and expand an existing structure by 86,000 square feet.	--	86 KSF
C17	*Vito Valenti, III*	This proposal would expand the Barstow Motorcycle Center on the 1.1 acre parcel at 2380 West Main Street at LaVerne Avenue from 6,200 square feet to 13,496 square feet	--	7.3 KSF
C18	*Wayne & Diane Francis /Interstate Fleet Service*	This 4.25-acre proposal would develop a towing, storage, and impound yard with truck, automobile, and RV repair and sales, with a small proposal filling station and outside wash bay. The development would be located at 2460 E. Main Street.	--	10.8 KSF
I1	*Robert Gonzales*	This 18.16 acre proposal would allow for the phased construction of a facility that would manufacture and sell block, pavers, concrete products, and building services. The development would be located at 2995 Lenwood Road.	--	15.2 KSF
I2	*Rock Service Products*	This proposal would subdivide one 3.65 acre parcel into two lots north of Interstate 40 and south of the Burlington Northern/Santa Fe railroad right-of-way	--	--
I3	*Michael Gilman*	This 51-acre proposal would expand an existing truck terminal to include cold storage. The development proposes 66,963 SF of warehouse uses, and 18,038 SF of office uses at 2951 Lenwood Road (Old Yellow Freight Building)	--	85 KSF
I5	*Walmart Stores East c/o Lynn McAlexander Agent: GSNT c/o Robert Ritter, Esq.*	This 142-acre proposal would adopt the West Barstow Specific Plan #4 to develop a Walmart Distribution Center. The development would be located west of Lenwood Road, north of Jasper Road, and south of Agate Road.	--	900 KSF

Index #	Development Proponent	Description	Total Development Units (DU)	Total Square Footage (SF)
I8	*Master Planned Barstow Industrial Park*	This 1,185-acre proposal would require a General Plan Amendment and zone change to establish a Specific Plan for a Master Planned Industrial Park. The development would be located west of Lenwood Road and north of the Santa Fe Rail Lines.	Not Yet Established	400 KSF
Source: City of Barstow, 2010; AES, 2010				



SOURCE: City of Barstow, 8/1/2009; AES, 2011

Figure 4.13-1
Cumulative Development Projects

Section 5.0, the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code in effect at the time of any project development. In addition, the project must comply with the requirements of the Construction Stormwater General Permit, which requires BMPs be chosen and implemented to address water quality degradation by preventing erosion, as outlined in **Section 5.2**. Therefore, implementation of Alternative A would not result in significant adverse cumulative effects to land resources.

Water Resources

Surface Water and Flooding

Cumulative effects to surface water may take place as a result of increased stormwater flows from additional impervious surfaces constructed within the area. Approved projects in the vicinity of Alternative A would be required to follow the City of Barstow's General Plan (General Plan) policies and municipal code provisions. Specifically, projects would comply with the provisions of Section VI.8 Storm Drainage, which includes evaluating the impacts of all new development and expansion projects on storm runoff and requiring developers to pay the costs of any necessary upgrades to existing drainage facilities. As discussed in **Subsection 2.2.1**, drainage facilities have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash and minimizing impacts to site drainage from changes in topography. Therefore, development of Alternative A would not result in adverse cumulative effects on surface water features.

Additional development in combination with Alternative A could result in cumulative adverse effects to floodplain management if structures were to impede floodways or raise flood elevations. Approved projects would be required to follow the municipal code, Title 15 of which requires development permits within special flood hazard areas (see **Section 3.2**) and special construction provisions that would require that encroachments within special flood areas would not result in any increase in flood levels or impede floodplain management. Additionally, approved projects would be required to pay flood control channel development fees. Development of Alternative A would not result in significant adverse cumulative effects to floodplain management.

Groundwater

Groundwater effects of individual developments could result in cumulative adverse effects if the total water demand of approved projects, including Alternative A, exceeds pumping capacity of groundwater wells. It is assumed that approved projects in the vicinity of Alternative A would meet water demand through connection with the Golden State Water Company. Local projects would abide by Section II.1, Water Resources, of the City's General Plan, which requires new development and expansion projects outside of existing service areas to purchase additional water supplies to offset the potential burden to the existing system. Additional water would be provided by the California State Water Project and would offset the need for additional groundwater use. Alternative A would not result in significant adverse cumulative effects on groundwater resources.

Water Quality

Concurrent construction of Alternative A and other relevant projects identified above could result in temporary cumulative effects to water quality. Construction activities could result in erosion and sediment discharge to surface waters, potentially effecting water quality in downstream water bodies. In addition, construction equipment and materials have the potential to leak, thereby discharging oils, greases, and construction supplies into stormwater, potentially affecting both surface water and groundwater. To mitigate potential adverse effects, approved developments would be required to implement erosion control measures and construction BMPs via a site-specific SWPPP in compliance with the State of California General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). With the implementation of measures identified in **Section 5.2**, Alternative A would not result in adverse cumulative effects on water quality.

Air Quality

Air Pollutant Trends

Cumulative air quality effects are assessed by comparing the incremental emissions associated with Alternative A to San Bernardino County-wide emissions forecasted by the California Air Resources Board (CARB) for long-term cumulative conditions (2020, the farthest planning horizon for county-wide emission forecasts). The County's emissions trends from 1975 to 2020 are presented in **Table 4.13-2**.

Ozone precursors (ROG and NO_X) had a small jump between 1975 and 1990. Since 1990 emissions have decreased consistently and are projected to decrease further in the future. PM_{10} emissions increased slightly from 1975 to 1990, only to drop off in 1995; however, PM_{10} emissions are projected to increase slightly over the next 25 years. The three pollutants discussed above are governed by state implementation plans (SIP) and therefore should decrease in the future.

TABLE 4.13-2
SAN BERNARDINO COUNTY EMISSIONS TRENDS

Pollutants	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
	tons per day									
ROG	195	213	227	214	179	153	119	101	94	92
NO_x	248	319	267	288	254	259	214	183	162	152
PM_{10}	177	189	234	241	209	210	204	211	223	234
Source: CARB, 2009d.										

Operational (2030) Conditions

Operation of Alternative A during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-3** shows operation and area emissions of Alternative A in year 2030, criteria pollutant emissions are compared to *de minimus* levels.

TABLE 4.13-3
ALTERNATIVE A LONG-TERM (2030) CONDITIONS

Source	ROG	NOx	PM_{10}
	tons per year		
Area	0.45	0.53	0.00
Mobile	13.98	14.10	60.05
Total Emissions	**14.43**	**14.63**	**60.05**
De Minimus Levels	*25*	*25*	*100*
Exceedance	No	No	No
Percentage of Countywide Emissions	***0.044***	***0.027***	***0.070***
Source: URBEMIS 2007 (**Appendix L** of the Draft EIS/TEIR).			

General Conformity Review

Past, present and future development projects, contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone and $PM_{10.}$ Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

Since no emission projections are available for San Bernardino County in 2030, 2020 emissions were used for comparison. **Table 4.13-3** shows that emissions associated with Alternative A are a relatively low percentage of San Bernardino County's emission inventory for ROG, NOx, and PM_{10} and project emissions do not exceed *de minimus* levels. When considered as a portion of the County's overall emissions, Alternative A makes a minimal contribution to regional air quality emissions. Furthermore, regional projects would be required to comply with the provisions of the Mohave Desert Air Quality Management District (MDAQMD) and implement dust controls in response to the provisions of Section II.4 of the General Plan. With the implementation of mitigation measures identified in **Section 5.3**, Alternative A would not result in adverse cumulative effects to air quality.

Climate Change

Climate change would not only have global impacts, such as more erratic weather patterns, more frequent droughts, and rising sea level, but climate change would cause regional and local impacts as well. Climate change has the potential to reduce the snow pack in the mountain regions, increase drought periods, and reduce water tables in California, potentially directly affecting the project site (CARB, 2007c).

Development of Alternative A would result in an increase in GHG emissions related to mobile sources (trips generated), area sources (components of Alternative A that directly emit GHG), and indirect sources related to electrical power generation.

Methodology

Two recent federal court decisions (*Massachusetts v. Environmental Protection Agency*, U.S., 1275 S.Ct. 1438, 1462 [2007] and *Center for Biological Diversity v. National Highway Safety Administration*, 508 F.3d 508 [9th Cir. 2007]) and slowly increasing scientific consensus have resulted in general guidance regarding appropriate GHG analysis (**Section 3.3**).

The approach used herein involves a combination of quantitative and qualitative analysis focusing on the project's impact on federal and California's efforts to reduce cumulative statewide GHG emissions. The following analysis is consistent with the CEQ's Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, released on February 18, 2010, which requires that a NEPA analysis of climate change quantify project-related GHG emissions and mitigate those emissions, particularly if the project is projected to directly emit greater than 25,000 metric tons (MT) per year of carbon dioxide equivalence (CO_2).

Climate change is a global issue that is not being caused by any single development project, but by global increases in atmospheric GHG concentrations. Thus, climate change is most effectively addressed on a global or regional level. California's global warming policies and legislation (most notably Executive Order S-3-05 and AB 32) are intended to be regional approaches to ensure that statewide emissions are reduced substantially in the future (to levels much lower than existing levels).

EPA and CARB approved URBEMIS 9.2.4 emissions modeling software was used to estimate area, construction, and mobile emissions resulting from the proposed alternatives. CH_4 and N_2O emissions from mobile sources were estimated using emission factors from the Local Government Operations Protocols (LGOP, 2008) and converted to CO_2e. Indirect emissions, which include electricity use, water conveyance, solid waste, and wastewater conveyance and treatment, were estimated using LGOP emission factors.

The CARB and the Climate Action Team (CAT) identified approximately 126 strategies and measures that may be utilized by the state to meet its emissions reduction targets in 2010, 2020, and 2050. Most of these measures focus on statewide action meant to curb emissions by changes in statewide planning or policies rather than changes to individual development projects. However, some of the measures may be directly applicable to specific industries or individual commercial developments. Should a development alternative comply with all directly applicable measures, the alternative would support the State's efforts to significantly reduce its cumulative contribution to global climate change (to levels recommended by the International Panel on Climate Change (IPCC) and CARB's Climate Change Scoping Report [CARB, 2008]) and the associated impacts.

For the purposes of this analysis, cumulative contributions associated with a development alternative would be less than significant if after mitigation the project emits 25,000 MT or less of CO_2e per year and complies with the strategies currently identified by CARB or CAT to comply with Executive Order S-3-05 or AB 32, provided that the strategies can be applied to proposed development alternatives.

Carbon Dioxide Equivalent

Carbon dioxide equivalent (CO_2e) is a method by which GHGs other than CO_2 are converted to a CO_2-like emission value based on a heat-capturing ratio. As shown in **Table 4.13-4**, CO_2 is used as the base and is given a value of one. CH_4 has the ability to capture 21 times more heat than CO_2; therefore, CH_4 is given a CO_2e value of 21. Emissions are multiplied by the CO_2e value to achieve one GHG emission value. By providing and common measurement, CO_2e provides a means for presenting the relative overall effectiveness of emission reduction measures for various GHGs in reducing project contributions to global climate change.

TABLE 4.13-4
GREENHOUSE GAS CO_2 EQUIVALENT

Gas	CO_2e Value
CO_2	1
CH_4	21
N_2O	310
HFCs/PFCs[1]	6,500
SF_6[1]	23,900

Note: CO2e =Carbon dioxide equivalent
[1] High-global warming potential pollutants
CH4 = methane, N2O = nitrous oxide
HFCs/PFCs = hydroflourocarbons/perflourocarbons
SF6 = sulfur hexaflouride
Source: BAAQMD, 2006; AES, 2010.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative A are shown in **Table 4.13-5.** The total annual project-related GHG emissions are estimated to be 38,949 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0039 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000029 percent. While Alternative A's contributions to statewide and global emissions are miniscule, primarily because the Alternative A would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

TABLE 4.13-5
PROJECT-RELATED GHG EMISSIONS

Alternative A	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct				
Construction	CO_2	1,877	0.91	1,708
Area	CO_2	629	0.91	572
Subtotal Direct GHG Emissions				*2,280*
Indirect				
Mobile	CO_2	35,687	0.91	32,475
Mobile	CH_4/N_2O	389	0.91	354
Electricity Usage	CO_2			2,060
Water and Wastewater	CO2e			24
Solid Waste	CO2e			1,756
Subtotal Indirect GHG Emissions				*36,669*
Total Project-Related GHG Emissions				**38,949**
GHG Reductions from Mitigation				
Reduce Construction Equipment Idling (MM 5.3-30)				34
Install Low Flow Facilities (MM 5.3-32)				1
Reduce Waste Stream by 50% (MM 5.3-31)				878
Install Energy Efficient Lighting (MM 5.3-35)				618
Install Solar Water Heaters (MM 5.3-39)				412
Federal and State Mobile Emission Reduction Strategies				985
Purchase GHG Emissions Credits (MM 5.3-41)				11,021
Subtotal GHG Reductions				*13,949*
Total Mitigated Project-Related GHG Emissions				**25,000**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative A, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative A (refer to **Table 4.13-6**). The other policies do not apply to Alternative A because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-6**, Alternative A would not be in compliance with all three applicable state climate change strategies. Furthermore, direct and indirect CO_2e emissions would be above the CEQ's 25,000 MT per year of CO_2e reporting standard. Therefore, this is a potentially significant cumulative effect and mitigation is recommended in **Section 5.3** which would reduce the potential for adverse cumulative effects associated with climate change.

TABLE 4.13-6
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative A would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Solid waste services are expected to be provided by the City of Barstow or County of San Bernardino, which are subject to the state's recycling requirements. The development would not affect City or County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative A would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill Source: Climate Action Team, 2006	

Biological Resources

Wildlife and Habitats

Implementation of Alternative A in conjunction with additional local projects could result in cumulative adverse effects to biological resources if habitats for special-status species were destroyed. However, potential adverse effects from individual projects would be avoided through compliance with applicable federal and state regulations. Additionally, approved projects would follow the provisions of Section II.5, Biological Resources, of the General Plan, which requires site-specific studies prior to development activities to determine precise mitigation necessary to preserve and enhance biological resources. With the implementation of the mitigation measures outlined in **Section 5.4,** Alternative A would not result in adverse cumulative effects to biological resources.

Mojave Desert Tortoise

There are a number of large scale renewable energy projects proposed in the Mohave Desert that have the potential to result in adverse cumulative effects to the Mojave Desert tortoise or other sensitive habitat for special status species. These projects, if approved, would result in the conversion of thousands of acres of potential habitat. The 16.51 acres of Mohave Creosote Brush Scrub habitat that would be converted under Alternative A would be a miniscule contribution to this overall cumulative effect. Furthermore, the Barstow site is located within the city limits adjacent to existing commercial development and is subject to disturbances from adjacent land uses, including the off-road vehicle recreation area, and thus does not

contain high quality habitat for this species. Mitigation has been recommended within Section 5.4 to avoid or minimize potential effects to Mohave Desert Tortoise. Therefore, given the relatively low area of land that would be impacted as a result of Alternative A, this is considered a less than significant cumulative effect.

Waters of the U.S.

As discussed in **Section 4.4**, implementation of Alternative A would not result in adverse effects to waters of the U.S. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative A would not contribute to adverse cumulative effects to waters of the U.S.

Cultural Resources

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. No significant cultural resources were identified within or adjacent to the Barstow site. However, the records search and archival research indicate that the study area is in a region moderately sensitive for both prehistoric/pre-contact resources and historic-period resources. Based on this sensitivity, Alternative A may affect previously unknown buried archaeological resources. As discussed in **Section 4.5**, direct effects to unknown cultural resources associated with Alternative A would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.5**. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. With the implementation of the mitigation measures outlined in **Section 5.5**, Alternative A would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Cumulative socioeconomic effects could occur in the project area as the result of developments that affect the lifestyle and economic well being of residents. When considered with other growth in San Bernardino County through 2030, there may be cumulative socioeconomic effects including impacts to the local labor market, housing availability, schools, increased costs due to problem gambling, and impacts to local government. These effects would occur as the region's economic and demographic characteristics change, as the population grows, and specific industries expand or contract. Alternative A would introduce new economic activity in the Barstow area, including jobs and revenues, which would be a beneficial effect to the region. Additionally, Alternative A would implement mitigation measures outlined in **Section 5.6** which would reduce the potential for adverse socioeconomic effects that could result from the project. Further, planning documents for the County will continue to designate land uses for businesses, industry, and housing, as well as plan public services which would anticipate and accommodate growth in the region. Therefore, with mitigation, Alternative A would not contribute to adverse cumulative socioeconomic effects.

Transportation/Circulation

Methodologies

To assess the cumulative transportation effects of the project under cumulative traffic conditions, project traffic is combined with existing traffic, area-wide growth, and other foreseeable developments. The 2004 Regional Transportation Plan's (RTP) Socioeconomic forecast, adopted by the Southern California Association of Governments Regional Council in April, is the approved growth forecast at the subregional level. According to these growth estimates, a rate of approximately 2.45 percent per year would occur between the years 2005 and 2035. RTPs are the industry standard used to predict growth for freeways and major arterial roadways. Therefore, for this analysis a conservative 2.5 percent per year growth rate was used. The detailed analysis of traffic volumes generated by cumulative development is provided in **Appendix H** of the Draft EIS/TEIR. Refer to **Section 4.7** for a detailed description of the trip generation and trip distribution methodologies for Alternative A.

Cumulative Background Traffic Conditions

Cumulative Background Intersection Operations

Table 4.13-7 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under cumulative background traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background traffic conditions. Weekday and Saturday peak hour turning volumes at each of the study intersections is provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 4.13-7
2035 CUMULATIVE BACKGROUND INTERSECTION CONDITIONS

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	14.6	B	14.4	B	14.9	B	14.9	B
2. Lenwood Rd./Main St.	TS	30.6	C	38.1	D	36.4	D	36.2	D
3. Main St./SR-58 EB Ramps	TS	3.7	A	4.1	A	3.5	A	3.5	A
4. Main St./SR-58 WB Ramps	TS	11.6	B	17.2	B	14.5	B	15.2	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.5	B	13.0	B	14.1	B	12.1	B
6. Lenwood Rd./I-15 NB Ramps	TS	23.9	C	23.5	C	29.4	C	21.3	C
7. Outlet Center Dr./I-15 SB Ramps	OWSC	9.8	A	11.1	B	11.8	B	10.5	B
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.3	A	8.9	A	9.8	A	9.0	A
9. Lenwood Rd./Mercantile Way	TS	37.4	D	37.6	D	38.3	D	37.9	D
10. Lenwood Rd./Project Access	-	-	-	-	-	-	-	-	-
11. Factory Outlet Ave/Mercantile Way	OWSC	8.6	A	9.0	A	8.9	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Bold denotes poor LOS.
Source: LL&G, 2010.

Cumulative Background Roadway Segments

Volume to capacity ratios and LOS for cumulative background conditions have been calculated for the study area roadway segments and are shown in **Table 4.13-8**. As shown in the table, all of the study roadway segments are projected to operate within an acceptable LOS under cumulative background traffic conditions without the project.

TABLE 4.13-8
CUMULATIVE BACKGROUND ROADWAY SEGMENT CONDITIONS

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.54	A
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.27	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.25	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.21	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Cumulative Background Freeway Segments

Volume to capacity ratios and LOS for the cumulative background conditions have been calculated for the study area freeway segments and are shown in **Table 4.13-9**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under cumulative background traffic conditions without the project.

TABLE 4.13-9
CUMULATIVE BACKGROUND FREEWAY SEGMENT CONDITIONS

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to SR-58	3	6,900	0.679	0.513	C	B
SR-58 to Lenwood Road	4	9,200	0.415	0.313	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.788	0.583	C	B
I-15 Southbound						
L Street to SR-58	3	6,900	0.762	0.664	C	C
SR-58 to Lenwood Road	3	6,900	0.621	0.525	C	B
Outlet Center Drive to Hodge Road	3	6,900	0.898	0.788	D	C

Notes: V/C = volume to capacity ratio.
Bold denotes poor LOS.
Source: LL&G, 2010.

Cumulative Background Plus Alternative A Traffic Conditions

Cumulative Intersection Operations

Table 4.13-10 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under cumulative background plus Alternative A traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background plus Alternative A traffic conditions, except for the following intersection:

- Lenwood Road at Project Access (Weekday and Saturday, Mid-Day and PM peak hours)

Mitigation provided in **Section 5.7** would reduce the project's impact to a less than significant effect. Weekday and Saturday cumulative peak hour turning volumes are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

TABLE 4.13-10
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE A INTERSECTION CONDITIONS

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	14.6	B	14.4	B	15.7	B	15.1	B
2. Lenwood Rd./Main St.	TS	30.8	C	39.0	D	37.4	D	37.2	D
3. Main St./SR-58 EB Ramps	TS	4.2	A	4.6	A	4.2	A	4.2	A
4. Main St./SR-58 WB Ramps	TS	11.6	B	17.6	B	14.5	B	15.2	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.5	B	14.8	B	21.0	C	13.4	B
6. Lenwood Rd./I-15 NB Ramps	TS	23.9	C	23.5	C	36.4	D	21.7	C
7. Outlet Center Dr./I-15 SB Ramps	OWSC	11.8	B	16.3	B	25.3	D	20.1	C
8. Outlet Center Dr./I-15 NB Ramps	OWSC	10.3	B	9.6	A	11.5	B	10.3	B
9. Lenwood Rd./Mercantile Way	TS	37.6	D	38.1	D	39.6	D	38.1	D
10. Lenwood Rd./Project Access.	OWSC	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.6	A	9.0	A	8.9	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Bold denotes poor LOS.
Source: LL&G, 2010.

Cumulative Roadway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative A traffic conditions have been calculated for the study area roadway segments and are shown in **Table 4.13-11**. As shown in the table, all of the study roadway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative A traffic conditions.

TABLE 4.13-11
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE A ROADWAY SEGMENT CONDITIONS

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.75	B
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.61	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.46	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.42	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
Source: LL&G, 2010.

Cumulative Freeway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative A traffic conditions have been calculated for the study area freeway segments and are shown in **Table 4.13-12**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative A traffic conditions.

TABLE 4.13-12
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE A FREEWAY SEGMENT CONDITIONS

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to SR-58	3	6,900	0.685	0.521	C	B
SR-58 to Lenwood Road	4	9,200	0.424	0.326	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.818	0.616	D	B
I-15 Southbound						
L Street to SR-58	3	6,900	0.771	0.654	C	C
SR-58 to Lenwood Road	3	6,900	0.638	0.544	C	B
Outlet Center Drive to Hodge Road	3	6,900	0.919	0.818	D	D

Notes: V/C = volume to capacity ratio.
Bold denotes poor LOS.
Source: LL&G, 2011.

Ramp Diverge Operations

Tables 2, 4, and 15 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis in the cumulative year 2035 at I-15 NB/SB off-ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, the diverge operations at the northbound and southbound off-ramps are calculated to operate at acceptable levels of service under cumulative year conditions both with and without each of the proposed project alternatives during the weekday peak hours, and Saturday peak hours, and Sunday AM peak hour. However, as shown in the

Table 15 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would exceed the County's significance threshold of LOS D at the I-15 southbound off-ramp in the cumulative year 2035 both with and without the addition of traffic generated by Alternative A. Mitigation measures provided in Section 5.7 would minimize Alternative A's contribution to this on-going cumulative adverse traffic condition. Therefore, with mitigation this cumulative effect is considered less than significant.

Intersection Queuing Operations

A queuing analysis at the I-15 NB/SB off-ramps to Lenwood Road and at I-15 NB/SB off-ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour for the cumulative year 2035 was conducted and is summarized in **Appendix Q** of the Final EIS/TEIR.

I-15 Off-Ramps/Lenwood Road

Based on the project trip distribution, project trips are only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables, there is sufficient capacity to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound off-ramps with or without Alternative A during the cumulative year 2035 at the movements in which the project adds trips, except during the following conditions:

- I-15 at Lenwood Road northbound right during the Saturday mid-day (95th Percentile) peak hour for the year 2035 without project traffic.
- I-15 at Lenwood Road northbound right during the Saturday mid-day (50th and 90th Percentile) peak hour for the year 2035 with Alternative A traffic.
- I-15 at Lenwood Road northbound right during the Sunday PM peak hour (50th and 95th Percentile) for the year 2035 with Alternative A traffic.

It should be noted that there are no federal, State, or local significance thresholds for queuing analysis. However, given that Alternative A would contribute to a traffic condition that could translate to level of service effects on the I-15 freeway, mitigation measures are provided in **Section 5.7** of the Final EIS/TEIR to minimize potential effects. Mitigation measures would redistribute an additional 30 percent of project traffic from I-15 at Lenwood Road off-ramps to the Outlet Center Drive off-ramps. With implementation these mitigation measures, the cumulative year 2035 Saturday mid-day 95th percentile and Sunday mid-day 95th percentile are still exceeded. However, there are ample capacity and queue storage lengths to accommodate the 50 percentile queues during the Saturday and Sunday mid-day peak hours. With mitigation, cumulative queuing effects as a result of Alternative A in the year 2035 at I-15 NB off-ramp at Lenwood Road would be considered less than significant.

I-15 Off-Ramps/Outlet Center Drive

Mitigation recommended within Section 5.7 of the Final EIS/TEIR to alleviate potential queuing effects at the I-15/Lenwood Road Interchange would result in the redirection of additional traffic to the I-15/Outlet Center Drive interchange. An analysis of the Outlet Center Drive interchange was conducted to ensure that the interchange could accommodate the additional traffic which would use the interchange

once mitigation was implemented. The I-15/Outlet Center Road interchange is currently un-signalized. With the addition of project related traffic, the I-15/Outlet Center Drive intersection would operate at an LOS E/F, which is considered an adverse cumulative effect. Mitigation measures within Section 5.7 require that both ramps be signalized. Table B-2 provided in **Appendix Q** of the Final EIS/TEIR shows that the interchange would operate at LOS C or better under cumulative plus Alternative A mitigated traffic conditions, which is less than the County's LOS D threshold. Additionally, with the implementation of mitigation to signalization of the interchange, sufficient capacity is available to serve the cumulative year 2035 traffic queues with Alternative A traffic. Therefore, after mitigation, cumulative effects to traffic operations at the Outlet Center Drive Interchange are considered less than significant.

Land Use

Development in the City is guided by the General Plan, applicable Specific Plans, the City Zoning Ordinance, and Redevelopment Plans. Planned development projects within the City are consistent with these documents and policies, which prevent disorderly growth or incompatible land uses. While Alternative A would not be subject to local land use policies, as discussed in **Section 4.8**, the Tribe has agreed to develop tribal projects on the trust land in a manner that is consistent with the Barstow Municipal Code, pursuant to its Municipal Services Agreement (MSA) with the City of Barstow. Alternative A would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. Alternative A would not result in adverse cumulative effects to land use planning.

Agriculture

Agricultural production and viable land for agriculture are both limited in the area. The Barstow site is located in an area designated for commercial development and no agricultural activities exist in the project area. Alternative A would not result in adverse cumulative effects to agricultural lands.

Public Services

Water Supply

Water demands have been projected by Golden State Water Company (GSWC) through 2030. The estimated water demand for the Barstow system is 11,927 acre-feet/year (ac-ft/yr) in 2010, 15,388 ac-ft/yr in 2020, and 18,833 ac-ft/yr in 2030 (GSWC, 2005). GSWC intends to pursue multiple strategies to ensure long-term ability beyond 2025 to serve all future water demands within the Barstow system (GSWC, 2005). The GSWC wells in the Barstow Customer Service Area have a surplus capacity of approximately 6,591 ac-ft/yr (GSWC, 2005). The Barstow Customer Service Area has adequate capacity for the estimated water demands of the Alternative A (225 ac-ft/yr) and future development.

As discussed in the General Plan, improvements made to the water system, and the construction of facilities added to the system are financed through water rates charged to customers, and contributions paid by developers. The Redevelopment Agency also has various funding mechanisms to upgrade the

existing water systems in redevelopment areas (City of Barstow, 1997). Alternative A would not result in adverse cumulative effects to municipal water suppliers.

Wastewater Service

Currently the wastewater plant serving the City has a treatment capacity of 4.5 million gallons per day (mgd) and a daily flow of approximately 2.7 mgd with a peak flow of 3.2 mgd. There is adequate surplus capacity to accommodate the peak (0.35 mgd) wastewater flows from Alternative A and future development. Should upgrades to the WWTP be required in the future due to more stringent waste discharge requirements that may be issued by the Regional Water Quality Control Board, payments made to the City through the MSA would provide for the Tribe's fair share contribution to the improvements. The City requires that all new development provide evidence of ability to be served by the Barstow wastewater treatment facilities prior to occupancy (City of Barstow, 1997). Upgrades to and expansion of infrastructure would be funded through development fees. Alternative A would not result in adverse cumulative effects to municipal wastewater providers.

Solid Waste

The County Solid Waste Management Division is responsible for operation and management of solid waste disposal in the County. As described in **Section 3.9.3**, the landfill currently serving the Barstow is expected to be expanded and the estimated permitted daily limit is 1,500 tons per day (Barbour, 2009). Projected solid waste generation for Alternative A is considered a small contribution to the waste stream and is not expected to dramatically decrease the life expectancy of the landfill. The anticipated closure date of the expanded landfill based on anticipated growth is 2070. Alternative A would not result in adverse cumulative effects to solid waste services in the geographic area of the cumulative effects zone.

Energy

Individual projects would be responsible for paying development or user fees to receive electrical or natural gas services. The Tribe would pay a fair share of the upgrades needed to avoid affecting the service of existing customers and any infrastructure necessary to provide service to Alternative A. Therefore, Alternative A would not contribute to a potential for adverse cumulative effects to energy providers.

Law Enforcement Services

New development would fund City services including law enforcement through development fees and property tax. As required by the MSA, the Tribe would make payments to the City to cover the costs of increased demand for law enforcement services that may result from Alternative A. The Tribe has also agreed in Section 4 of the MSA, upon request of the City, to dedicate land for fire and police station use and pay for a portion of new fire and police stations. With implementation of the conditions of the MSA, as discussed in **Section 5.9**, development of Alternative A would not contribute to a potential for adverse cumulative effects to law enforcement services.

Fire Protection and Emergency Medical Services

New development would be required to fund City services including fire protection and emergency medical through development fees and property tax. Emergency medical costs are paid primarily by the individual requiring service. In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for the purchase of a fully equipped Emergency Medical Services Response Vehicle. Under the MSA, the Tribe has committed to pay one half of the actual costs of training fire personnel if the hotel/casino structure exceeds four stories. In Section 4(C) of the MSA, the Tribe has also agreed to dedicate or arrange for the dedication of two-acres of land near the project site for fire or police station use.

With implementation of the conditions of the MSA, as discussed in **Section 5.9**, Alternative A would not contribute to a potential for adverse effects on fire protection and emergency medical services.

Noise

Approved projects would be required to comply with the provisions of Section III.4, Noise, of the General Plan, which includes requirements for mitigation noise when levels exceed compatible use standards as outlined in Section III.4 of the General Plan. With the implementation of mitigation measures outlined in **Section 5.10**, Alternative A would not result in adverse cumulative effects to the ambient noise environment.

Hazardous Materials

As discussed in **Section 4.11**, with the incorporation of the BMPs outlined in **Section 5.11** implementation of Alternative A would result in minimal impacts regarding hazardous materials management. Approved projects would be required to follow applicable federal and state regulations concerning hazardous materials management, including the implementation of construction BMPs dealing with hazardous materials management through the NPDES permitting process. Approved projects would also be required to comply with the provisions of Section III.4, Emergency Management, of the General Plan, which includes requirements for businesses that use, store, or generate hazardous materials to file a business plan with the County Hazardous Materials Management Division. With the implementation of mitigation measures outlined in **Section 5.11**, Alternative A would not result in cumulative adverse impacts to hazardous materials management.

Aesthetics

Cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines. Development of Alternative A would, for the most part, be consistent with the visual goals of local land use regulations. The project site is not located in a scenic corridor or an area of high aesthetic value. Substantial development is present to the north and west of the Barstow site. With the implementation of mitigation measures outlined in **Section 5.12**, Alternative A would not result in adverse cumulative impacts to aesthetic resources.

4.13.3 ALTERNATIVE B – BARSTOW REDUCED CASINO-HOTEL COMPLEX

List of Potentially Cumulative Actions and Projects

Alternative B would be constructed on the same parcel of land as Alternative A; therefore, the list of potentially cumulative actions and projects would be the same for Alternative B as that of Alternative A.

Land Resources

The principal effects to land resources associated with cumulative developments would be localized topographical changes and soil attrition. Topographic changes may be cumulatively significant if the topography contributes significantly to the environmental quality with respect to drainage, habitat, or other values. Soil loss could be cumulatively considerable if the project alone would not result in significant loss of topsoil, but taken together with all other developments may result in significant depletion of available soils. Alternative B would require minimal grading of existing topographic features, and soil disturbance would be significantly less than under Alternative A since there would be no subsurface parking under Alternative B. Local permitting requirements for construction would address regional geotechnical and topographical conflicts, and seismic hazards. It is anticipated that approved developments will follow the appropriate permitting procedures. As discussed in **Section 5.0**, the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code in effect at the time of any project development. In addition, the project must comply with the requirements of the Construction Stormwater General Permit, which requires BMPs be chosen and implemented to address water quality degradation by preventing erosion, as outlined in **Section 5.2**. Therefore, implementation of Alternative B would not contribute to cumulative effects to land resources.

Water Resources

Surface Water and Flooding

Cumulative effects to surface water may take place as a result of increased stormwater flows from additional impervious surfaces constructed within the area. Approved projects would be required to follow the General Plan policies and municipal code provisions, evaluate the impacts of all new development and expansion projects on storm runoff, and pay the costs of any necessary upgrades to existing drainage facilities. As discussed in **Subsection 2.2.1**, drainage facilities have been incorporated into the project design to detain the increase in runoff on-site, maintaining the pre-development runoff rate to the Lenwood wash and minimizing impacts to site drainage from changes in topography. Therefore, development of Alternative B would not result in cumulative effects to the drainage shed when considered with other development in the area.

Additional development in combination with Alternative B could result in cumulative adverse effects to floodplain management if structures were to impede floodways or raise flood elevations. Approved projects would be required to follow the municipal code, Title 15 of which requires development permits within special flood hazard areas (see **Section 3.2**) and special construction provisions that would require that encroachments within special flood areas would not result in any increase in flood levels or impede

floodplain management. Additionally, approved projects would be required to pay flood control channel development fees. Development of Alternative B would not result in cumulative effects to floodplain management.

Groundwater

Increased development could result in cumulative adverse effects if the total water demand of approved projects exceeds pumping capacity of groundwater wells or the total annual recharge of the basin. Local projects would abide by Section II.1, Water Resources, of the City's General Plan, which requires new development and expansion projects outside of existing service areas to purchase additional water supplies to offset the potential burden to the existing system. Under Alternative B, potable water would be supplied by the available capacity of the Golden State Water Company and would not require the use of on-site groundwater resources.

Water Quality

Construction activities could result in erosion and sediment discharge to surface waters, potentially effecting water quality in downstream water bodies. In addition, construction equipment and materials have the potential to leak, thereby discharging oils, greases, and construction supplies into stormwater, potentially affecting both surface water and groundwater. Concurrent construction of Alternative B and other relevant cumulative projects identified above could result in temporary cumulative effects to water quality. To mitigate potential adverse effects, approved developments including Alternative B would be required to implement erosion control measures and construction BMPs in a site-specific SWPPP in compliance with the Construction Stormwater General Permit. With the implementation of measures identified in **Section 5.2**, Alternative B would have minimal adverse cumulative effects on water quality.

Air Quality

Air Pollutant Trends

Air pollution trends for Alternative B would be the same as Alternative A due to the location of the two alternatives.

Operational (2030) Conditions

Operation of Alternative B during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-13** shows operation and area emissions of Alternative B in year 2030, criteria pollutant emissions are compared with *de minimus* levels.

General Conformity Review

Past, present and future development projects, contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment

designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone and $PM_{10.}$ Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

TABLE 4.13-13
ALTERNATIVE B LONG-TERM (2030) CONDITIONS

Source	ROG	NOx	PM_{10}
	tons per year		
Area	0.34	0.37	0.00
Mobile	10.31	10.44	44.44
Total Emissions	**10.65**	**10.81**	**44.44**
De Minimus Levels	*25*	*25*	*100*
Exceedance	No	No	No
Percentage of Countywide Emissions	***0.030***	***0.019***	***0.050***
Source: URBEMIS 2007.			

Since no emission projections are available for San Bernardino County in 2030, 2020 emissions were used for comparison. **Table 4.13-13** shows that emissions associated with Alternative B are a relatively low percentage of San Bernardino County's emission inventory for ROG, NOx, and PM_{10} and project emission do not exceed *de minimus* levels. When considered as a portion of the County's overall emissions, Alternative B would result in a minimal effect to regional air quality. Furthermore, regional projects would be required to comply with the provisions of the Mohave Desert Air Quality Management District (MDAQMD) and implement dust controls in response to the provisions of Section II.4 of the General Plan. With the implementation of mitigation measures identified in **Section 5.3**, Alternative B would not result in adverse cumulative effects to air quality.

Climate Change

Methodology

Methodology for analyzing project related GHG emissions for Alternative B is the same as Alternative A. Refer to **Section 4.13.2**.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative B are shown in **Table 4.13-14**. The total annual project-related GHG emissions are estimated to be 28,762 MT per year of CO2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0035 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000026 percent. While Alternative B's contributions to statewide and global emissions are miniscule, primarily

because the Alternative B would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

TABLE 4.13-14
PROJECT-RELATED GHG EMISSIONS

Alternative B	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct				
Construction	CO_2	1,657	0.91	1,508
Area	CO_2	429	0.91	391
Subtotal Direct GHG Emissions				*1,899*
Indirect				
Mobile	CO_2	26,409	0.91	24,032
Mobile	CH_4/N_2O	196	0.91	178
Electricity Usage	CO_2			1,422
Water and Wastewater	CO2e			17
Solid Waste	CO2e			1,214
Subtotal Indirect GHG Emissions				*26,863*
Total Project-Related GHG Emissions				**28,762**
GHG Reductions from Mitigation				
Reduce Construction Equipment Idling (MM 5.3-30)				30
Install Low Flow Facilities (MM 5.3-32)				1
Reduce Waste Stream by 50% (MM 5.3-31)				607
Install Energy Efficient Lighting (MM 5.3-35)				426
Install Solar Water Heaters (MM 5.3-39)				284
Federal and State Mobile Emission Reduction Strategies				721
Purchase GHG Emissions Credits (MM 5.3-41)				1,693
Subtotal GHG Reductions				*3,762*
Total Mitigated Project-Related GHG Emissions				**25,000**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative B, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative B (refer to **Table 4.13-15**). The other policies do not apply to Alternative B because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-15**, Alternative B would not be in

compliance with all three applicable state climate change strategies. Further, direct and indirect CO_2e emissions would be above the CEQ's 25,000 MT per year of CO_2e reporting standard. Therefore, this is a potentially significant cumulative effect and mitigation is recommended in **Section 5.3**, which would reduce the potential for adverse cumulative effects associated with climate change.

TABLE 4.13-15
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative B would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Solid waste services are expected to be provided by the City of Barstow or County of San Bernardino, which are subject to the state's recycling requirements. The development would not affect City or County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative B would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill. Source: Climate Action Team, 2006	

Biological Resources

Wildlife and Habitats

Implementation of Alternative B in conjunction with additional local projects could result in cumulative adverse effects to biological resources if habitats for special-status species were destroyed. However, potential adverse effects from individual projects would be avoided through compliance with applicable federal and state regulations. Additionally, approved projects would follow the provisions of Section II.5, Biological Resources, of the General Plan, which requires site-specific studies prior to development activities to determine precise mitigation necessary to preserve and enhance biological resources. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative B would not result in adverse cumulative effects to biological resources.

Mojave Desert Tortoise

There are a number of large scale renewable energy projects proposed in the Mohave Desert that have the potential to result in adverse cumulative effects to the Mohave Desert that have the potential to result in

adverse cumulative effects to the Mojave Desert tortoise or other sensitive habitat for special status species. These projects, if approved, would result in the conversion of thousands of acres of potential habitat. The 16.51 acres of Mohave Creosote Brush Scrub habitat that would be converted under Alternative B would be a miniscule contribution to this overall cumulative effect. Furthermore, the Barstow site is located within the city limits adjacent to existing commercial development and is subject to disturbances from adjacent land uses, including the off-road vehicle recreation area, and thus does not contain high quality habitat for this species. Mitigation has been recommended within Section 5.4 to minimize potential effects to Mohave Desert Tortoise. Therefore, given the relatively low area of land that would be impacted as a result of Alternative B, this is considered a less than significant cumulative effect.

Waters of the U.S.

As discussed in **Section 4.4**, implementation of Alternative B would not result in adverse effects to waters of the U.S. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative B would not contribute to adverse cumulative effects to waters of the U.S.

Cultural Resources

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. No significant cultural resources were identified within or adjacent to the Barstow site. However, the records search and archival research indicate that the study area is in a region moderately sensitive for both prehistoric/pre-contact resources and historic-period resources. Based on this sensitivity, Alternative B may affect previously unknown buried archaeological resources. As discussed in **Section 4.5**, direct effects to unknown cultural resources associated with Alternative B would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.5**. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. With the implementation of the mitigation measures outlined in **Section 5.5**, Alternative B would not result in adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Cumulative socioeconomic effects could occur in the project area as the result of developments that affect the lifestyle and economic well being of residents. When considered with other growth in San Bernardino County through 2030, there may be cumulative socioeconomic effects including impacts to the local labor market, housing availability, schools, increased costs due to problem gambling, and impacts to local government. These effects would occur as the region's economic and demographic characteristics change, as the population grows, and specific industries expand or contract. Alternative B would introduce new economic activity in the Barstow area, although to a lesser extent than Alternative A, which would be a beneficial effect to the region. Additionally, Alternative B would implement mitigation measures outlined in **Section 5.6** which would reduce the potential for adverse socioeconomic effects that could result from the project. Further, planning documents for the County will continue to designate land

uses for businesses, industry, and housing, as well as plan public services which would anticipate and accommodate growth in the region. Therefore, within mitigation, Alternative B would not contribute to adverse cumulative socioeconomic effects.

Transportation/Circulation

Alternative B would have similar adverse effects to transportation/circulation as Alternative A, although to a lesser extent as fewer trips would be generated. With the implementation of the mitigation measure outlined in **Section 5.7**, Alternative B would not result in significant adverse cumulative effects to transportation/circulation resources.

Cumulative Background Conditions

Cumulative background conditions for Alternative B are the same as Alternative A. Refer to **Section 4.13.2.**

Cumulative Background Plus Alternative B Traffic Conditions

Cumulative Intersection Operations

Table 4.13-16 shows the weekday and Saturday intersection delay and LOS for both the mid-day and PM peak hours at each of the study intersections under cumulative background plus Alternative B traffic conditions. As shown in the table, each of the study intersections would operate at an acceptable LOS under background plus Alternative B traffic conditions, except for the following intersection:

- Lenwood Road at Project Access (Weekday and Saturday, Mid-Day and PM peak hours)

TABLE 4.13-16
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE B INTERSECTION CONDITIONS

Intersections	Traffic Controls	Peak Hour Delay-LOS							
		Weekday				Saturday			
		Mid-Day		PM		Mid-Day		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Lenwood Rd./SR-58	TS	14.6	B	14.4	B	15.7	B	15.1	B
2. Lenwood Rd./Main St.	TS	30.7	C	38.8	D	37.4	D	37.2	D
3. Main St./SR-58 EB Ramps	TS	4.1	A	4.5	A	4.2	A	4.2	A
4. Main St./SR-58 WB Ramps	TS	11.6	B	17.6	B	14.5	B	15.2	B
5. Lenwood Rd./I-15 SB Ramps	TS	12.5	B	14.2	B	21.0	C	13.4	B
6. Lenwood Rd./I-15 NB Ramps	TS	23.9	C	23.5	C	36.4	D	21.7	C
7. Outlet Center Dr./I-15 SB Ramps	OWSC	11.2	B	14.5	B	25.3	D	20.1	C
8. Outlet Center Dr./I-15 NB Ramps	OWSC	9.9	B	9.3	A	11.5	B	10.3	B
9. Lenwood Rd./Mercantile Way	TS	37.6	D	38.1	D	39.6	D	38.1	D
10. Lenwood Rd./Project Access.	OWSC	**>100**	**F**	**>100**	**F**	**>100**	**F**	**>100**	**F**
11. Factory Outlet Ave/Mercantile Way	OWSC	8.6	A	9.0	A	8.9	A	8.8	A

TS = traffic signal, OWSC = One-Way Stop Controlled
Bold denotes poor LOS.
Source: LL&G, 2010.

A mitigation measure is provided in **Section 5.7**, which would reduce project impact to a minimal adverse effect. Weekday and Saturday cumulative peak hour turning volumes are provided in the TIA in **Appendix H** of the Draft EIS/TEIR.

Cumulative Roadway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative A traffic conditions have been calculated for the study area roadway segments and are shown in **Table 4.13-17**. As shown in the table, all of the study roadway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative B traffic conditions.

TABLE 4.13-17
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE B ROADWAY SEGMENT CONDITIONS

Roadway	Segment	Number of Lanes	Maximum Capacity	V/C	LOS
Lenwood	I-15 NB Ramps to Mercantile Way	5D	33,000	0.70	B
Lenwood	Mercantile Way to Holiday Inn Driveway	3U	21,000	0.53	A
Lenwood	Holiday Inn Driveway to Outlet Center Drive	2U	14,000	0.40	A
Outlet Center Drive	Lenwood Road to I-15 NB Ramps	2U	14,000	0.36	A

Notes: D = divided roadway, U = undivided roadway
ADT = average daily trips
V/C = volume to capacity ratio
SOURCE: LL&G, 2010.

Cumulative Freeway Segments

Volume to capacity ratios and LOS for cumulative background plus Alternative B traffic conditions have been calculated for the study area freeway segments and are shown in **Table 4.13-18**. As shown in the table, all of the study freeway segments are projected to operate within an acceptable LOS under cumulative background plus Alternative B traffic conditions.

TABLE 4.13-18
2035 CUMULATIVE BACKGROUND PLUS ALTERNATIVE B FREEWAY SEGMENT CONDITIONS

Roadway Segments	Number of Lanes	Capacity	V/C		LOS	
			Mid-day	PM	Mid-day	PM
I-15 Northbound						
L Street to Lenwood Road	3	6,900	0.684	0.519	C	B
	4	9,200	0.424	0.326	B	B
Outlet Center Drive to Hodge Road	3	6,900	0.810	0.607	D	B
I-15 Southbound						
L Street to Lenwood Road	3	6,900	0.769	0.651	C	C
	3	6,900	0.638	0.544	C	B
Outlet Center Drive to Hodge Road	3	6,900	0.913	0.810	D	D

Notes: V/C = volume to capacity ratio.
Bold denotes poor LOS.
Source: LL&G, 2010.

Ramp Diverge Operations

Tables 2, 4, and 15 of **Appendix Q** of the Final EIS/TEIR provide a ramp diverge operations analysis in the cumulative year 2035 at I-15 NB/SB off-ramps to Lenwood Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour. As shown in the tables, the diverge operations at the northbound and southbound off-ramps are calculated to operate at acceptable levels of service under cumulative year conditions both with and without Alternative B traffic during the weekday peak hours, Saturday peak hours, and Sunday AM peak hour. However, as shown in the Table 15 of **Appendix Q** of the Final EIS/TEIR, ramp diverge operations during the Sunday PM peak-hour would exceed the County's significance threshold of LOS D at the I-15 southbound off-ramp in the cumulative year 2035 both with and without Alternative B traffic. Mitigation measures provided in Section 5.7 would minimize Alternative B's contribution to this on-going cumulative adverse traffic condition. Therefore, with mitigation this cumulative effect is considered less than significant.

Intersection Queuing Operations

A queuing analysis at the I-15 NB/SB off-ramps to Lenwood Road and at I-15 NB/SB off-ramps to Outlet Center Road for the weekday, and Saturday mid-day and PM peak-hour and Sunday PM peak-hour for the cumulative year 2035 was conducted and is summarized in **Appendix Q** of the Final EIS/TEIR.

I-15 Off-Ramps/Lenwood Road

Based on the project trip distribution, project trips are only added to the I-15 SB Off-Ramp/Lenwood Road southbound left-turn movement and the I-15 NB Off-Ramp/Lenwood Road northbound right-turn movement. As shown in the tables, there is sufficient capacity to accommodate the expected 50th and 95th percentile queues at the I-15/Lenwood Road northbound and southbound off-ramps with or without Alternative B during the cumulative year 2035 at the movements in which the project adds trips, except during the following conditions:

- I-15 at Lenwood Road northbound right during the Saturday mid-day (95th Percentile) peak hour for the year 2035 without project traffic.
- I-15 at Lenwood Road northbound right during the Saturday mid-day (50th and 90th Percentile) peak hour for the year 2035 with Alternative B traffic.
- I-15 at Lenwood Road northbound right during the Sunday PM peak hour (50th and 95th Percentile) for the year 2035 with Alternative B traffic.

It should be noted that there are no federal, State, or local significance thresholds for queuing analysis. However, given that Alternative B would contribute to a traffic condition that could translate to level of service effects on the I-15 freeway, mitigation measures are provided in **Section 5.7** of the Final EIS/TEIR to minimize potential effects. Mitigation measures would redistribute an additional 30 percent of project traffic from I-15 at Lenwood Road off-ramps to the Outlet Center Drive off-ramps. With implementation these mitigation measures, the cumulative year 2035 Saturday mid-day 95th percentile is still exceeded. However, there are ample capacity and queue storage lengths to accommodate the 50 percentile queues during the Saturday mid-day peak hour. With mitigation, cumulative queuing effects as

a result of Alternative B in the year 2035 at I-15 NB off-ramp at Lenwood Road would be considered less than significant.

I-15 Off-Ramps/Outlet Center Drive

Mitigation recommended within Section 5.7 of the Final EIS/TEIR to alleviate potential queuing effects at the I-15/Lenwood Road Interchange would result in the redirection of additional traffic to the I-15/Outlet Center Drive interchange. An analysis of the Outlet Center Drive interchange was conducted to ensure that the interchange could accommodate the additional traffic which would use the interchange once mitigation was implemented. The I-15/Outlet Center Road interchange is currently un-signalized. With the addition of project related traffic, the I-15/Outlet Center Drive intersection would operate at an LOS E/F, which is considered an adverse cumulative effect. Mitigation measures within Section 5.7 require that both ramps be signalized. Table B-2 provided in **Appendix Q** of the Final EIS/TEIR shows that the interchange would operate at LOS C or better under cumulative plus Alternative A mitigated traffic conditions, which is less than the LOS D threshold. Additionally, with the implementation of mitigation to signalization of the interchange, sufficient capacity is available to serve the cumulative year 2035 traffic queues with Alternative B traffic. Therefore, after mitigation, cumulative effects to traffic operations at the Outlet Center Drive Interchange are considered less than significant.

Land Use and Agriculture

Development in the City is guided by the General Plan, applicable Specific Plans, the City Zoning Ordinance, and Redevelopment Plans. Planned development projects within the City are consistent with these documents and policies, which prevent disorderly growth or incompatible land uses. While Alternative B would not be subject to local land use policies, as discussed in **Section 4.8**, the Tribe has agreed to develop tribal projects on the trust land in a manner that is consistent with the Barstow Municipal Code, pursuant to its MSA with the City of Barstow. Alternative B would not disrupt neighboring land uses, prohibit access to neighboring parcels, or otherwise conflict with neighboring land uses. Alternative B would not result in adverse cumulative effects to land use planning.

Agriculture

Agricultural production and viable land for agriculture are both limited in the area. The Barstow site is located in an area designated for commercial development and no agricultural activities exist in the project area. As with Alternative A, Alternative B would not result in adverse cumulative effects to agricultural lands.

Public Services

As Alternative B would consist of similar components as Alternative A, it would result in similar potential adverse effects to public services although to a lesser extent due to the reduced demand for public services from a smaller casino and hotel. The resources to service Alternative B would be provided through the MSA, similar to Alternative A; therefore development of Alternative B would not result in adverse cumulative effects to public services. Because Alternative B includes a smaller casino

and hotel, the water demands and wastewater generation would be decreased by one third compared to Alternative A, further reducing the possibility of cumulative effects.

Noise

Approved projects would be required to comply with the provisions of Section III.4, Noise, of the General Plan, which includes requirements for mitigation noise when levels exceed compatible use standards as outlined in Section III.4 of the General Plan. The potential for Alternative B to result in significant adverse cumulative effects associated with noise would be similar to Alternative A, although to a lesser extent as less traffic noise would be generated. With the implementation of mitigation measures outlined in **Section 5.10**, Alternative B would not contribute to adverse cumulative effects to the ambient noise environment.

Hazardous Materials

As discussed in **Section 4.11**, with the incorporation of the BMPs outlined in **Section 5.11** implementation of Alternative B would result in minimal impacts regarding hazardous materials management. Approved projects would be required to follow applicable federal and state regulations concerning hazardous materials management, including the implementation of construction BMPs dealing with hazardous materials management through the NPDES permitting process. Approved projects would also be required to comply with the provisions of Section III.4, Emergency Management, of the General Plan, which includes requirements for businesses that use, store, or generate hazardous materials to file a business plan with the County Hazardous Materials Management Division. With the implementation of mitigation measures outlined in **Section 5.11**, Alternative B would not result in cumulative adverse impacts to hazardous materials management.

Aesthetics

Cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines. As with Alternative A, development of Alternative B would, for the most part, be consistent with the visual goals of local land use regulations. The project site is not located in a scenic corridor or an area of high aesthetic value. Substantial development is present to the north and west of the Barstow site. With the implementation of mitigation measures outlined in **Section 5.12**, Alternative B would not result in adverse cumulative impacts to aesthetic resources.

4.13.4 ALTERNATIVE C – LOS COYOTES RESERVATION CASINO

List of Potentially Cumulative Actions and Projects

Alternative C would be located on the Los Coyotes Reservation. This section analyzes the potential cumulative effects of Alternative C when added to other reasonably foreseeable growth and projects within and outside of the Reservation. Within the reservation, cumulative projects include the on-going operations of the Eagle Rock Military Training Facility (MTF). The lease agreement between the Tribe and Eagle Rock Training Center (ERTC) specifies that uses permitted at the Eagle Rock MTF are limited to firearms and on-and off-road driver training for law enforcement, military personnel, and/or permitted

civilians. Beyond the Reservation boundaries, cumulative projects include those approved by local jurisdictions or tribal governments.

Land Resources

The potential cumulatively considerable adverse effects to land resources associated with countywide development would be localized topographical changes and soil attrition. Any ground disturbance greater than one acre on the Reservation would require a NPDES General Permit. Accordingly, a SWPPP would be developed prior to any ground disturbance greater than one acre, which would include, but would not be limited to, implementation of the BMP's listed within **Section 5.2**. Permitting requirements for the construction of projects within the County's jurisdiction would address regional geotechnical, seismic, and mining hazards. It is anticipated that approved developments will follow appropriate permitting procedures; therefore, with the implementation of measures identified in **Section 5.0**, Alternative C would result in minimal adverse cumulative effects to land resources.

Water Resources

Surface Water and Flooding

Cumulative effects to surface water may take place as a result of increased stormwater flows from additional impervious surfaces constructed within the area. Approved projects on federal lands would be required to follow federal standards. Additionally, local projects within the jurisdiction of San Diego County would comply with the Conservation Element of the County of San Diego's General Plan (General Plan), which includes policies to ensure storm water runoff is planned and managed to minimize water degradation and reduce the effect of erosion. Alternative C would therefore result in minimal cumulatively considerable adverse effects on surface water features. The project site for Alternative C is not located within designated 100- or 500-year flood plain. Implementation of Alternative C would not result in adverse cumulative effects to floodplain management.

Groundwater

Groundwater effects of individual developments could result in cumulatively considerable adverse effects if the total water demand of approved projects, including Alternative C exceeds pumping capacity of the groundwater table. However, as stated above, approved projects within the jurisdiction of San Diego County would be required to comply with the Conservation Element of the General Plan, which include requirements to assure growth is limited to areas where adequate public facilities exist or can be efficiently provided. Projects on federal lands would be required to follow federal standards. Therefore, implementation of Alternative C would result in minimal adverse cumulative effects on groundwater resources.

Water Quality

Potential adverse effects to water quality, approved developments would be required to implement erosion control measures and construction BMPs via a site-specific SWPPP in compliance with the State of California General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). Additionally, projects within the County's jurisdiction

would comply with water quality provisions outlined within the Conservation Element of the General Plan. With the implementation of measures identified in **Section 5.2**, Alternative C would have minimal adverse cumulative effects on water quality.

Air Quality

Air Pollutant Trends

Cumulative air quality effects are assessed by comparing the incremental emissions associated with Alternative C to San Diego County-wide emissions forecasted by the California Air Resources Board (CARB) for long-term cumulative conditions (2020, the farthest planning horizon for county-wide emission forecasts). The County's emissions trends from 1975 to 2020 are presented in **Table 4.13-19**. Ozone precursor (ROG and NO_X) had a small jump between 1975 and 1990, but since 1990 emissions decreased consistently, and are projected to drop off in the future. The two pollutants discussed above are governed by state implementation plans (SIP) and therefore should decrease in the future.

Table 4.13-19
San Diego County Emissions Trends

Pollutants	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
	tons per day									
ROG	845	879	902	798	680	576	530	538	557	581
NO_x	293	285	299	331	283	246	206	177	156	160
SOURCE: CARB, 2009d.										

Operational (2030) Conditions

Operation of Alternative C during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-20** shows operation and area emissions of Alternative C in year 2030, criteria pollutant emissions are compared to *de minimus* levels.

General Conformity Review

Past, present and future development projects contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone. Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

Since no emission projections are available for San Diego County in 2030, 2020 emissions were used for comparison. **Table 4.13-20** shows that emissions associated with Alternative C are a relatively low

percentage of San Diego County's emission inventory for ROG and NOx and project emissions do not exceed de minimus levels. When considered as a portion of the County's overall emissions, Alternative C makes a minimal contribution to regional air quality. With the implementation of mitigation measures identified in **Section 5.3**, Alternative C would not result in adverse cumulative effects to air quality.

TABLE 4.13-20
ALTERNATIVE C (2030) EMISSIONS

Sources	Criteria Pollutants	
	ROG	NOx
	tons per day	
Area	0.05	0.03
Mobile	3.76	4.49
Total Emissions	**3.81**	**4.52**
De Minimus Levels	100	100
Exceedance	No	No
Source: URBEMIS, 2007; CARB, 2009d		

Climate Change

Methodology

Methodology and significance thresholds for analyzing project related GHG emissions for Alternative C is the same as Alternative A.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative C are shown in **Table 4.13-21.** The total annual project-related GHG emissions are estimated to be 12,316 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0009 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000009 percent. While Alternative C's contributions to statewide and global emissions are miniscule, primarily because the Alternative C would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

TABLE 4.13-21
PROJECT-RELATED GHG EMISSIONS

Alternative C	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct				
Construction	CO_2	268	0.91	244
Area	CO_2	37	0.91	34
Subtotal Direct GHG Emissions				*278*
Indirect				
Mobile	CO_2	12,792	0.91	11,641
Mobile	CH_4/N_2O	141	0.91	128
Electricity Usage	CO_2			144
Water and Wastewater	CO2e			2
Solid Waste	CO2e			123
Subtotal Indirect GHG Emissions				*12,038*
Total Project-Related GHG Emissions				**12,316**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative C, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative C (refer to **Table 4.13-22**). The other policies do not apply to Alternative C because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-22**, Alternative C would not be in compliance with all three applicable state climate change strategies. Although, direct and indirect CO_2e emissions would be below the CEQ's 25,000 MT per year of CO_2e reporting standard, this is a potentially significant cumulative effect and mitigation is recommended in **Section 5.3**, which would reduce the potential for adverse cumulative effects associated with climate change.

Biological Resources

Wildlife and Habitats

Implementation of Alternative C in conjunction with additional local projects could result in cumulatively considerable adverse effects to biological resources if habitats for special-status species were destroyed. Potential adverse effects from individual projects would be avoided through compliance with applicable federal and state regulations. Additionally, approved projects within the jurisdiction of San Diego County would follow the provisions of the San Diego County General Plan (General Plan), which require measures to reduce impacts to habitats for special-status species to the extent possible. With the

implementation of the mitigation measures outlined in **Section 5.4,** Alternative C would result in minimal adverse cumulative effects to biological resources.

TABLE 4.13-22
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative C would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	The development would not affect County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative C would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill. Source: Climate Action Team, 2006	

Waters of the U.S.

As discussed in **Section 4.4**, implementation of Alternative C would not result in adverse effects to waters of the U.S. Approved projects would be required to apply for permits from the USACE prior to disturbing waters of the U.S. With the implementation of the mitigation measures outlined in **Section 5.4**, Alternative C would result in minimal adverse cumulative effects to waters of the U.S.

Cultural Resources

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. No significant cultural resources were identified within or adjacent to the Los Coyotes site. However, the records search and archival research indicate that the study area is in a region moderately sensitive for both prehistoric/pre-contact resources and historic-period resources. Based on this sensitivity, Alternative C may affect previously unknown buried archaeological resources. As discussed in **Section 4.5**, direct effects to unknown cultural resources associated with Alternative C would be reduced to a minimal level with the implementation of mitigation measures specified in **Section 5.5**. Approved projects would be required to follow federal, state, and local regulations regarding cultural resources and inadvertent discoveries of cultural resources. Alternative C would therefore result in minimal adverse cumulative effects to cultural resources.

Socioeconomic Conditions

Alternative C would introduce a new source of economic activity in the San Diego area. The creation of jobs and revenues that would result from the project is considered to be a beneficial effect. When considered with other growth in San Diego County through 2030 there may be cumulative socioeconomic effects including impacts to the local labor market, housing availability, schools, increased costs due to problem gambling, and impacts to local government. However, these effects would occur as the region's economic and demographic characteristics change, as the population grows, and specific industries expand or contract. Planning documents for the County will continue to designate land uses within the jurisdiction of San Diego County for businesses, industry, and housing, as well as plan public services which would anticipate growth in the region. Impacts to local governments from activities on federal lands would be regulated by federal standards. Therefore, no significant cumulative socioeconomic effects would result. An analysis of growth-inducing effects is provided in **Section 4.14.2**.

Transportation/Circulation

Methodologies

To assess the cumulative transportation effects of the project under the cumulative year traffic conditions, project traffic is combined with existing traffic and area-wide growth. Horizon year 2030 traffic volumes for the Los Coyotes site study area have been calculated based on a conservative two percent annual growth rate of existing traffic volumes over a 24-year period. This growth rate for the Los Coyotes site study area was obtained from the *Traffic Volumes on California State Highways* published by Caltrans. While the TIA included in Appendix H of the Draft EIS/TEIR did not specifically consider traffic generated by the Eagle Rock MTF, the operation of the Eagle Rock MTF would generate trips during the early mornings (5:00 to 7:00 AM) and evenings (5:30 to 7:00 PM). Due to the nature of the operations at the Eagle Rock MTF, significant trips will not be added to the peak hours associated with the operations of Alternative C, mid-day (12:00 to 2:00 PM) and evenings (4:00 to 6:00 PM) and, therefore, do not significantly contribute towards the cumulative effects discussed below.

Cumulative Traffic Conditions

Intersection Operations

Table 4.13-23 shows the weekday and Saturday intersection delay and LOS for both the mid-day and evening peak hours at each of the Los Coyotes site study intersections under 2030 traffic conditions. Weekday and Saturday cumulative peak hour turning volumes at the Los Coyotes site are provided in the TIA in **Appendix H** of the Draft EIS/TEIR. As shown in the table, each of the study intersections would operate at an acceptable LOS of C or better under 2030 traffic conditions without the project, and with the addition of project-related traffic. As shown in the table, each of the study intersections would operate at an acceptable LOS of C or better under 2030 traffic conditions without the project, and with the addition of project-related traffic.

TABLE 4.13-23
CUMULATIVE BACKGROUND PLUS ALTERNATIVE C INTERSECTION CONDITION

Intersection	Traffic Control	No Project - Peak Hour Delay-LOS				Alternative E - Peak Hour Delay-LOS			
		Weekday		Saturday		Weekday		Saturday	
		Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening	Mid-Day	Evening
1. SR-79/Stage Road	CSS	9.0-A	9.1-A	10.7-B	10.5-B	9.3-A	9.5-A	11.5-B	11.1-B
2. SR-79/Camino San Ignacio Road	CSS	9.4-A	9.1-A	10.5-B	9.4-A	10.2-B	10.3-B	13.5-B	11.4-B
3. SR-79/San Felipe Road	CSS	10.9-B	10.2-B	11.8-B	10.7-B	11.4-B	10.7-B	12.9-B	11.5-B
4. SR-79/SR-76	CSS	10.9-B	10.9-B	16.5-C	13.1-B	11.5-B	11.6-B	19.8-C	14.6-B

Notes: **Bold** indicates unacceptable LOS; CSS = cross street stop.
Source: Kunzman, 2007.

Roadway Segment Operations

Volume to capacity ratios and LOS for the cumulative year have been calculated for the study area roadway segments and are shown in **Table 4.13-24**. This table shows volume to capacity ratios and LOS, both with and without the addition of project-related traffic. As shown in the table, the study roadway segment is projected to operate at an acceptable LOS under cumulative conditions with implementation of Alternative C.

TABLE 4.13-24
CUMULATIVE BACKGROUND PLUS ALTERNATIVE C ROADWAY SEGMENT CONDITION

Roadway	Segment	No. of Lanes[1]	Maximum Capacity (LOS E)	2030 No Project			2030 with Alternative E		
				ADT[2]	V/C[3]	LOS	ADT	V/C	LOS
Camino San Ignacio Road	South of SR-79	2U	10,900	800	0.07	A	1,800	0.17	A

Notes: **Bold** indicates unacceptable traffic operations; 1. D = divided roadway; U undivided roadway. 2. ADT = average daily trips 3. V/C = volume to capacity ratio.
Source: Kunzman, 2007c.

Traffic Signal Warrant Analysis

Under year 2030 with Alternative C traffic conditions, none of the study intersections would warrant a traffic signal.

Effect Summary

Because the increase in traffic generated by Alternative C would not result in an unacceptable LOS or warrant a traffic signal, Alternative C would result in a minimal adverse cumulative effect to the transportation and circulation networks.

Land Use

The Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians has jurisdictional authority over land use matters within the Reservation. Use of the Los Coyotes site as a casino/hotel resort would

not preclude the use of surrounding lands for recreational purposes. The San Diego County General Plan guides development in the surrounding area. Future development surrounding the Reservation would be required to be consistent with the zoning requirements of the General Plan. Furthermore, disorderly growth, or incompatible uses are not anticipated for the area surrounding the Reservation. Alternative C would result in minimal adverse cumulative effects to land use management.

Agriculture

The Reservation has not been used for agricultural activities and land in the vicinity is mostly desert. Alternative C would result in minimal adverse cumulative effects to agricultural lands.

Public Services

The aspects of overall project design and recommended measures presented in **Section 4.9** will minimize or eliminate all identified adverse effects. Future development would be required to pay for increased demand on public services through development fees and taxes. Alternative C would result in minimal adverse cumulative effects to public services.

Noise

With the implementation of mitigation measures outlined in **Section 5.10** in conjunction with the regulatory requirements for local projects, Alternative C would result in minimal adverse cumulative effects to the ambient noise environment.

Hazardous Materials

As discussed in **Section 4.11**, with the incorporation of the BMPs outlined in **Section 5.11** implementation of Alternative C would result in minimal impacts regarding hazardous materials management. Approved projects would be required to follow applicable federal and state regulations concerning hazardous materials management, including the implementation of construction BMPs dealing with hazardous materials management through the NPDES permitting process. With the implementation of mitigation measures outlined in **Section 5.11**, Alternative C would result in minimal adverse cumulative impacts to hazardous materials management.

Aesthetics

Any cumulative development occurring within San Diego County's jurisdiction would be consistent with local land use regulations, including associated design guidelines. Development of Alternative C would occur on land under the jurisdiction of the Tribal Council of the Los Coyotes Band of Cahuilla and Cupeño Indians. The Los Coyotes site, which is located in a remote area of the Los Coyotes Reservation, is not visible from any off-reservation location. With the implementation of mitigation measures outlined in **Section 5.12**, Alternative C would result in minimal adverse cumulative effects to aesthetic resources.

4.13.5 ALTERNATIVE D – LOS COYOTES RESERVATION CAMPGROUND

List of Potentially Cumulative Actions and Projects

Alternative D would be constructed on the same parcel on land as Alternative C; therefore, the summary of potentially cumulative actions and projects would be the same as Alternative C.

Land Resources

Potential cumulatively adverse effects to land resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to land resources.

Water Resources

Potential cumulatively adverse effects to water resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to water resources.

Air Quality

Air Pollutant Trends

Air pollution trends for Alternative D would be the same as Alternative C due to the location of the two alternatives.

Operational (2030) Conditions

Operation of Alternative D during long-term 2030 conditions would result in the generation of criteria pollutants. **Table 4.13-25** shows operation and area emissions of Alternative D in year 2030, criteria pollutant emissions are compared with de minimus levels.

General Conformity Review

Past, present and future development projects, such as the Eagle Rock MTS contribute to a regions air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the National Ambient Air Quality Standards (NAAQS). If a project's individual emissions contribute toward exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels. As stated in **Section 3.3** the project site and vicinity is in nonattainment for ozone. Because project emissions are below the *de minimus* thresholds for these pollutants, air quality in the region is not cumulatively impacted.

Since no emission projections are available for San Diego County in 2030, 2020 emissions were used for comparison. **Table 4.13-25** shows that emissions associated with Alternative D are a relatively low percentage of San Diego County's emission inventory for ROG and NOx and project emissions do not exceed de minimus levels. When considered as a portion of the County's overall emission, Alternative D makes a minimal contribution to regional air quality. With the implementation of mitigation measures identified in **Section 5.3**, Alternative D would not result in adverse cumulative effects to air quality.

TABLE 4.13-25
ALTERNATIVE D (2030) EMISSIONS

Sources	Criteria Pollutants	
	ROG	NOx
	tons per day	
Area	0.02	0.00
Mobile	5.93	6.98
Total Emissions	**5.95**	**6.98**
De Minimus Levels	100	100
Exceedance	No	No
Percentage of Countywide Emissions	***0.0028***	***0.012***
Source: URBEMIS, 2007; CARB, 2009d.		

Climate Change

Methodology

Methodology and significance thresholds for analyzing project related GHG emissions for Alternative D are the same as Alternative A.

Strategies and Emission Estimates

Estimated GHG emissions resulting from Alternative D are shown in **Table 4.13-26.** The total annual project-related GHG emissions are estimated to be 18,516 MT per year of CO_2e. This includes direct emissions from construction and operational area sources, as well as indirect emissions from mobile sources (vehicles traveling to and from the site), water/wastewater conveyance and processing, solid waste disposal and processing, and electricity use. Annual project GHG emissions would be approximately 0.0012 percent of California's predicted contribution to global GHG emissions in 2020. Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000010 percent. While Alternative D's contributions to statewide and global emissions are miniscule, primarily because the Alternative D would not emit or result in the emission of high-global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution.

TABLE 4.13-26
PROJECT-RELATED GHG EMISSIONS

Alternative D	GHGs	CO_2e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO_2e (MT)
Direct				
Construction	CO_2	215	0.91	196
Area	CO_2	1	0.91	1
Subtotal Direct GHG Emissions				*197*
Indirect				
Mobile	CO_2	19,901	0.91	18,110
Mobile	CH_4/N_2O	219	0.91	199
Electricity Usage	CO_2e			1
Water and Wastewater	CO_2e			4
Solid Waste	CO_2e			5
Subtotal Indirect GHG Emissions				*18,319*
Total Project-Related GHG Emissions				**18,516**

MM = mitigation measure.
Source: LGOP, 2008; URBEMIS, 2007, AES, 2011.

As discussed above and in **Section 3.3**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from implementation of Alternative D, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to Alternative D (refer to **Table 4.13-27**). The other policies do not apply to Alternative D because they either apply to state entities, such as CARB, are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.13-27**, Alternative D would not be in compliance with all three applicable state climate change strategies. Although, direct and indirect CO_2e emissions would be below the CEQ's 25,000 MT per year of CO_2e reporting standard, this is a potentially significant cumulative effect and mitigation is recommended in **Section 5.3**, which would reduce the potential for adverse cumulative effects associated with climate change.

Biological Resources

Potential cumulatively adverse effects to biological resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to biological resources.

Cultural Resources

Potential cumulatively significant adverse effects to land resources for Alternative D would be similar to those for Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore,

implementation of Alternative D would also result in minimal adverse cumulative effects to cultural resources.

TABLE 4.13-27
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES

Exec Order S-3-05 / AB 32 Strategy	Project Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Alternative D would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	The development would not affect County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics. Although the diversion stream will not be affected the waste stream would increase. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	Alternative D would not be consistent with this strategy. Mitigation measures are provided in **Section 5.3**, which would make the project consistent with this strategy.
Note: AB= Assembly Bill. Source: Climate Action Team, 2006	

Socioeconomic Conditions

Potential cumulatively significant adverse effects to land resources for Alternative D would be similar to those for Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to socioeconomic conditions.

Transportation/Circulation

Potential cumulatively adverse effects to transportation/circulation resources for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to transportation/circulation resources.

Land Use

Potential cumulatively adverse effects to land use for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to land use.

Public Services

Potential cumulatively adverse effects to public services for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to public services.

Noise

Potential cumulatively adverse effects to ambient noise environment for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to ambient noise environment.

Hazardous Materials

Potential cumulatively adverse effects to hazardous materials management for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to hazardous materials management.

Aesthetics

Potential cumulatively adverse effects to aesthetics for Alternative D would be similar to those of Alternative C, albeit to a lesser extent due to the reduced scope of development. Therefore, implementation of Alternative D would also result in minimal adverse cumulative effects to aesthetics.

4.13.6 ALTERNATIVE E – NO ACTION

Under the No Action Alternative no changes in land use on the Barstow site are reasonably foreseeable. None of the adverse or beneficial effects identified for Alternatives A and B are anticipated to occur.

4.14 INDIRECT AND GROWTH INDUCING EFFECTS

The Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) (Section 1508.8) defines indirect effects as impacts caused by an action that are later in time or farther removed in distance, but are a reasonably foreseeable result of the action. Direct impacts - caused by the action and occur at the same time and place at the action - have been discussed in **Sections 4.1** to **4.12**. In the event of ambiguity, or when it was determined the level and clarity of analysis would benefit, indirect effects of issue areas are addressed in **Sections 4.1** to **4.12** of this EIS/TEIR. Cumulative impacts measured in conjunction with other reasonably foreseeable projects, whether past, present, or future, are addressed in **Section 4.13** of the EIS/TEIR. The issues discussed below are those in which potential impacts would clearly occur later in time or are geographically removed from the project alternatives. Potential indirect effects associated with proposed alternatives would be minimized to a less than significant level though project design and recommended measures presented in **Chapter 5.0**.

The potential indirect effects of off-site traffic mitigation and utility/infrastructure improvements integral to the development of Alternative A through Alternative D are discussed independently in **Section 4.14.1** as they are distinctively separated in time and space from the proposed alternatives. Growth inducing effects are also discussed independently in **Section 4.14.2** since they are a distinct subset of indirect effects. Growth-inducing effects are defined as effects that result from economic or population growth, or the construction of additional housing as a result of the implementation of the proposed alternatives.

4.14.1 INDIRECT EFFECTS FROM OFF-SITE INFRASTRUCTURE IMPROVEMENTS

Improvements

Implementation of Alternative A or Alternative B at the Barstow site would require construction of roadway and utility improvements and public service structures off-site. Impacts associated with Alternatives A and B would be mitigated through the construction of additional turn lanes within the surrounding roadway network, installation of signage, signalization of various intersections, and the installation of a traffic signal adjacent to the access point to the Barstow site. Public utilities would need to be upgraded and extended to the project site, with the longest distance being the extension of the 10-inch diameter wastewater and water lines that currently terminate at the intersection of Lenwood Road and Mercantile Way. This extension would require the construction of approximately 800 feet of trench adjacent to Lenwood Road. Upgrades to the utility systems entail the expansion of the line system capacity and corresponding lift station capacities. Additionally, in Section 4(C) of the MSA, the Tribe has agreed to dedicate, or arrange for the dedication of, two-acres of non-federal land near the project site for fire and police station use. Off-site improvements are conceptual at this time. Design and construction plans would be prepared after an alternative has been selected for development and would be developed in accordance with City input.

Implementation of Alternatives C and Alternative D would result in potential extension of existing utility lines. The extension of these lines would occur on the Reservation and would be constructed within

existing roadbeds. All construction activities would comply with the Tribe's and USEPA's environmental policies. Utility line extensions are not anticipated to result in adverse environmental effects.

Environmental Consequences

The following section identifies the potential indirect environmental effects of construction of the offsite improvements for Alternatives A and B. The identified improvements are common to both alternatives and the nature and scope of effects would be similar. Off-site projects would require obtaining approvals and permits from the City and may be subject to the California Environmental Quality Act (CEQA), which requires additional environmental review prior to project approval. Implementation of permitting and CEQA requirements would further reduce the potential for significant adverse effects from off-site construction projects.

Land Resources

The construction of roadway and utility improvements would require grading and the introduction of fill material to extend existing road shoulders and roadbed and install sewer/water lines. Potential impacts include physical impacts to the transportation network from geological hazards and increased potential for soil erosion due to the increase of impervious surfaces and additional earthwork needed to construct the improvements.

Impacts resulting from the construction of additional turn lanes and off-site infrastructure would be minimal, as the projects would not cross any known geological hazards. As discussed in **Section 3.1**, the soils on the project site are not expansive, corrosive, or susceptible to subsidence. The soil types and geological hazards identified at the sites for off-site traffic mitigation and utility improvements are the same as that analyzed for the Barstow site (**Figures 3.1-3** and **3.1-4**). Therefore, the impact associated with the construction of off-site traffic mitigation would be the same as those for Alternatives A and B, although to a lesser extent, as a smaller area of disturbance would be required. The shaking potential for the new turnouts and extended pipelines associated with seismic hazards and the regional location of seismically active faults would be similar to the conditions of the existing roadway and pipeline. Under the jurisdiction of the City of Barstow, the project would require the use of stable fill material, engineered embankments, and erosion control features to reduce the potential for adverse impacts to land resources. Construction of most of the roadway improvements over one acre would be required to comply with the NPDES General Construction Permit Program.

Impacts resulting from the construction of the two-acre public service facility (police and/or fire facility as indicated in the MSA) would depend on the selected site. As discussed above, under the jurisdiction of the City of Barstow, the project would require the use of best management practices to reduce the potential for adverse impacts to land resources. Should construction of the public service facility be over one acre, compliance with the NPDES General Construction Permit Program would be required. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with land resources. Incorporation of the legal requirements and industry standards (i.e., best management practices) would further reduce potential impacts from off-site construction projects to a less than significant level.

Water Resources

The development of the off-site improvements could affect water resources due to grading and construction activities and an increase in impervious surfaces. Potential adverse effects include increased surface runoff and increased erosion that could adversely affect surface water quality due to increases in sediment and roadway pollutant discharge.

Construction activities over one acre would be required to comply with the NPDES General Construction Permit Program. To comply with the program, a Stormwater Pollution Prevention Plan (SWPPP) would be developed that would include soil erosion and sediment control practices to reduce the amount of exposed soil, prevent runoff from flowing across disturbed areas, slow runoff from the site, and remove sediment from the runoff.

The effects to runoff volumes resulting from the increase in impervious roadways are expected to be minimal due to the limited extent of the improvements in comparison to the existing roadways. Curb and gutters, inlets, and other drainage facilities would be reconstructed to provide adequate facilities to direct stormwater runoff into the existing system. With incorporation of these drainage features and compliance with the soil erosion and sediment control practices identified in the SWPPP, significant adverse effects to water resources would not occur.

Impacts resulting from the construction of the public service facility would depend on the site chosen for the structures. With the incorporation of site appropriate drainage features and compliance with the soil erosion and sediment control practices identified in the SWPPP, significant adverse effects to water resources would not occur. Development of Alternatives A and B would not result in significant adverse indirect effects associated with water resources. Incorporation of best management practices and compliance with legal requirements would further reduce potential impacts from off-site construction projects to a less than significant level.

Air Quality

Construction of the off-site improvements would result in short-term construction-related air pollution emissions. The construction phase would produce two types of air contaminants: exhaust emissions from construction equipment and fugitive dust generated as a result of soil movement. Exhaust emissions from construction activities include those associated with the transport of workers and machinery to the site, as well as those produced onsite as the equipment is used. Construction of improvements would be limited in scope and duration. In addition, off-site construction projects over 0.5 acres would have to comply with the Mojave Desert Air Quality Management District (MDAQMD) air quality control rules, including Rule 403.2, Fugitive Dust Control for the Mojave Desert Planning Area, which includes the City. These include watering the exposed soil to reduce dust, reducing dirt track-out from construction sites, and preventing grading operations during high wind conditions. Implementation of MDAQMD requirements for pollution controls at construction projects would reduce potential emissions from the construction projects. Construction projects under 0.5 acres are not regulated in regards to the implementation of air quality control measures, as they are considered to have minimum potential adverse effects to the regional air quality. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with air quality. Compliance with the Federal Clean Air Act and California Clean Air

Act would further reduce potential air quality impacts from off-site construction projects to a less than significant level.

Biological Resources

Construction of the roadway improvements would result in loss of some existing vegetation and/or modification of drainage channels. Most of the habitat that exists in the areas of proposed roadway improvements is highly disturbed and consists of roadsides and moderately disrupted desert scrub habitats. Due to the degraded condition of the roadside areas, habitat quality is generally low, and it is unlikely that construction of the roadway improvements would result in any adverse effects to sensitive plant or animal species. As such, less than significant impacts are expected from the proposed roadway improvements.

Construction of utility improvements would not result in the loss of habitat or impacts to special-status species because the utility lines either already exist or are located under existing roadways. Due to the limited nature of the improvements along existing roadways and the degraded condition of existing habitat, significant adverse effects from the construction of utility improvements would not occur.

Impacts resulting from the construction of the public service facility would depend on the selected site. Compliance with the Endangered Species Act (ESA) and California Endangered Species Act (CESA) would minimize indirect effects. Implementation of Alternatives A and B would not result in significant adverse indirect effects to biological resources.

Cultural Resources

The construction of off-site improvements has the potential to disturb archaeological resources. Grading roadsides to add traffic lanes or expanding intersections may disturb previously unknown sites. Due to prior grading of the existing roadways and occasional traffic on roadsides it is likely that any resources would lack integrity, thus diminishing their significance. Impacts resulting from the construction of the public service facility would depend on the selected site. Archaeological and historic resources are afforded special legal protections designed to reduce the adverse effects of development. Potential Off-site improvement projects would be subject to the protection of cultural resources afforded by the CEQA Guidelines Section 15064.5 and related provisions of the Public Resources Code. In addition, projects with federal involvement would be subject to Section 106 of the National Historic Preservation Act. Implementation of Alternatives A and B would not result in significant adverse indirect effects to cultural resources.

Transportation and Circulation

Construction of off-site improvements would result in short term inconveniences and minor delays due to constricted traffic movements. The intersection improvements are not expected to result in long-term disruption of access to surrounding land uses. Construction activities would occur off the major roadways and would not impede traffic to businesses. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with socioeconomics.

Land Use

Construction of roadway improvements would occur within existing right-of-ways and would not conflict with surrounding land uses. Surrounding land uses will be taken into consideration when designating a site for the two-acre public service facility. Implementation of Alternatives A and B would not result in significant adverse indirect effects to land use.

Public Services

Construction of the intersection improvements may require the relocation of utilities located within and near the existing roadways. Relocation could result in a temporary disruption in service. Such disruptions are common when upgrading and maintaining utility services and local jurisdictions have standard procedures for minimizing effects. Construction of the public service facility will increase the availability of law enforcement and/or fire and emergency medical services. No effects to solid waste services are expected. Implementation of Alternatives A and B would not result in significant adverse indirect effects to public services.

Noise

Construction activities associated with the off-site improvements would result in short-term increases in local ambient noise. Because construction activities are expected to occur during normal daytime hours and the closest receptors are businesses, significant adverse effects to the ambient noise environment would not occur. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with noise.

Hazardous Materials

The accidental release of hazardous materials used during grading and construction activities could pose a hazard to construction employees and the environment. Additionally equipment used during grading and construction activities could ignite dry grasses and weeds on the project sites. These hazards, which are common to construction activities, would be minimized with adherence to best management practices (BMPs) as outlined by the SWPPP prepared in response to the NPDES general permit for construction, if required. These BMPs include refueling in designated areas, storing hazardous materials in approved containers, and clearing dried vegetation. Implementation of Alternatives A and B would not result in significant adverse indirect effects associated with hazardous materials.

Aesthetics

Off-site improvement plans would be developed in accordance with City design standards. Therefore, implementation of Alternative A and Alternative B would not result in significant adverse indirect effects associated with aesthetics.

4.14.2 GROWTH-INDUCING EFFECTS

NEPA requires that an EIS analyze “growth inducing effects” (40 C.F.R. §1502.16 (b), 40 C.F.R. §1508.8 (b)). A growth inducing effect is defined as one that fosters economic or population growth, or the construction of additional housing. Growth inducement could result if a project established substantial

new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises) or if it would remove obstacles to population growth (e.g., expansion of a wastewater treatment plant that could allow more construction in the service area). Direct growth inducement is possible if a project contains a component that by definition would lead to "growth," such as the construction of new housing. None of the project alternatives includes direct growth inducement. This section assesses the potential for indirect growth inducement for each development alternative.

Alternative A – Barstow Casino-Hotel Complex

Development of Alternative A would result in one-time employment opportunities from construction and permanent employment opportunities from operation. These opportunities would result from direct as well as indirect and induced effects. Construction opportunities would be temporary in nature, and would not be anticipated to result in the permanent relocation of employees into San Bernardino County. Operational employment opportunities would potentially include employees that relocate to San Bernardino from outside of the county.

Subsection 4.6.1 determined that the employment impact would result in an annual total of approximately 1,562 employment opportunities, including direct, indirect, and induced opportunities. Of these, the majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. As discussed in **Subsection 4.6.1**, there are anticipated to be approximately 84,212 vacant housing units in San Bernardino County in 2014 and approximately 1,852 vacant housing units in Barstow in 2014. Therefore, based on regional housing stock projections, and current trends in San Bernardino County housing market data, there are anticipated to be more than enough vacant homes to support potential impacts to the regional labor market under Alternative A. As such, Alternative A is not expected to stimulate regional housing development. A significant adverse impact to the housing market would not occur.

The potential for commercial growth resulting from the development of Alternative A would result from fiscal output generated throughout San Bernardino County. Under Alternative A, this output would be generated from direct, indirect, and induced economic activity. Construction and operation activities would result in direct output to the industries discussed in **Subsection 4.6.1**. Businesses in these sectors would generate growth in the form of indirect output resulting from expenditures on goods and services at other area businesses. In addition, employees from Alternative A would generate growth from induced output resulting from expenditures on goods and services at other area businesses. Indirect and induced output could create further demand for growth; however, such demand would be diffuse and distributed among a variety of different sectors and businesses in San Bernardino County. As such, a significant adverse impact to regional commercial growth would not be anticipated to occur.

Development in Barstow or other cities within San Bernardino County would be subject to the constraints of their general plans, local ordinances, and other planning documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal impact to San Bernardino County as a result of potential growth inducement would be considered less than significant.

Alternative B – Barstow Reduced Casino-Hotel Complex

Development of Alternative B would generate new employment opportunities that could result in additional housing and commercial demand. **Subsection 4.6.2** determined that the employment impact would result in an annual total of approximately 1,085 employment opportunities, including direct, indirect, and induced opportunities. Similar to Alternative A, the majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. The effect of housing and potential commercial growth would be comparable but to a lesser extent than Alternative A, since Alternative B is reduced in size and scope. Similar to Alternative A, based on regional housing stock projections, and current trends in San Bernardino County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative B. As such, Alternative B is not expected to stimulate regional housing development and a significant adverse impact to the housing market would not occur.

Development in Barstow or other cities within San Bernardino County would be subject to the constraints of that general plans, local ordinances, and other planning documents. New projects resulting from any induced effect would be subject to appropriate project-level environmental analysis. As discussed above, the minimal impact to San Bernardino County as a result of potential growth inducement would be considered less than significant.

Alternative C – Los Coyotes Reservation Casino

Subsection 4.6.3 determined that the employment impact of Alternative C would result in an annual total of approximately 108 employment opportunities, including direct, indirect, and induced opportunities. Of these, the majority of positions are anticipated to be filled with people already residing within the region and would, therefore, not require new housing. As discussed in **Subsection 4.6.3**, there are anticipated to be approximately 53,420 vacant housing units in San Diego County in 2014. Therefore, based on regional housing stock projections, and current trends in San Diego County housing market data, there are anticipated to easily be more than enough vacant homes to support potential impacts to the regional labor market under Alternative C. As such, Alternative C is not expected to stimulate regional housing development. A significant adverse impact to the housing market would not occur. Due to the limited scope of Alternative C, a significant adverse impact to regional commercial growth would not be anticipated to occur.

Alternative D – Los Coyotes Reservation Campground

Development of Alternative D would generate new employment opportunities that could result in additional housing and commercial demand in San Diego County. **Subsection 4.6.4** determined that given the small magnitude of employment opportunities generated from Alternative D, Alternative D would result in a negligible, if any, impact to the housing market, and would be considered less than significant.

Alternative E – No Action

Under the No Action Alternative, a change in the current land use of the Barstow site is not reasonably foreseeable. None of the adverse or beneficial effects identified for the Proposed Project would be anticipated to occur.

CHAPTER 5.0

MITIGATION MEASURES

CHAPTER 5.0 MITIGATION MEASURES

The Council on Environmental Quality (CEQ) NEPA Regulations define mitigation as "avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitating, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, compensating for the impact by replacing or providing substitute resources or environments" (40 CFR § 1508.20). These principles have been applied to guide design and siting criteria for the project alternatives.

As described more fully in **Chapter 2.0**, alternatives integrate regulatory requirements, conditions of Municipal Service Agreements (MSA), and Best Management Practices (BMPs) into the overall project design in an effort to minimize the potentially adverse environmental effects identified in **Chapter 4.0**, including indirect and cumulatively adverse effects. When appropriate, mitigation measures have been recommended. Relevant regulatory requirements, conditions of the MSA, BMPs, and recommended mitigation measures are summarized below. All mitigation is enforceable because it is 1) inherent to the project design, 2) under terms of the MSA (**Appendix D** of the Draft EIS/TEIR), and/or 3) required through provisions of federal or state statute, where applicable.

5.1 LAND RESOURCES

BARSTOW SITE

In accordance with Section 2 of the Tribe's MSA with the City of Barstow (City), the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code in effect at the time of any project development. The Tribe has also agreed to adopt building standards and codes no less stringent than those adopted by the City and prior to the use of any structure provide the City, at the Tribe's expense, written certification from the project's architect of record that said structures have been constructed in accordance with said standards and code provisions. Further, the Tribe has agreed to ensure compliance with the City's adopted codes including those pertaining to building standards and to contract with the City to provide planning, building and safety, fire prevention, and public works personnel to review any and all construction plans and inspect construction of all improvements on or off the trust lands. With the incorporation of the MSA provisions identified above, development of Alternatives A and B would result in minimal direct, indirect, and cumulatively considerable adverse effects to land resources.

LOS COYOTES SITE

With the incorporation of the mitigation measures identified in **Section 5.2** below, development of Alternatives A and B would result in minimal direct, indirect, and cumulatively considerable adverse effects to land resources.

5.2 WATER RESOURCES

The following regulatory requirements and BMPs recommended for Alternatives A through D would avoid, minimize, or mitigate adverse effects to water resources:

REGULATORY REQUIREMENTS

In accordance with Section 402 of the Clean Water Act, the Tribe will file with the United States Environmental Protection Agency (USEPA) a Notice of Intent for coverage under the Phase II NPDES General Permit for Stormwater Discharges Associated with Construction Activities (General Permit). Accordingly, a Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to any ground disturbance at the project site and shall include practices to reduce potential surface water contamination during storm events. The SWPPP will outline site-specific BMPs designed to comply with the water quality and soil erosion provisions of the General Permit.

SWPPP BMPS

The purpose of the following BMPs is to minimize or eliminate pollution of storm water from construction-related sources; some BMPs apply to several pollution sources. The BMPs included within the site-specific SWPPP shall include, but are not limited to, the following:

1. Major grading activities will be scheduled during the dry season.
2. Erosion control blankets or jute netting will be placed in rough graded ditches and then hydro-seeded.
3. Fiber rolls and straw wattles will be installed through the construction site around the down-slope perimeter of the construction site.
4. Hay or straw mulch and tackifier will be used as temporary measure for stabilizing disturbed areas.
5. Landscaping will be managed to minimize erosion and sedimentation according to the following practices:
   - Rock filter berms will be placed across roadways.
   - Sediment basins will be installed throughout the project site and will be removed during the final phase of construction.
   - Silt fencing will be placed down-slope of exposed soil areas and around temporary soil stockpiles.
   - Sacked rock filters will be placed around new curbs and drainage inlets around the project site until the soils are stabilized with permanent landscaping.
6. Catch basins, junction boxes, culverts, and outfall structures/energy dissipaters will be used throughout the grading plan.
7. Detention basins will be constructed to provide for sediment settling.
8. Ingress/egress points to the project site will be stabilized and graded.
9. A wash station will be erected at the egress point of the project site if dirt and mud tracking from the site is anticipated.
10. Cleaning, fueling, maintenance, and repair of construction vehicles and equipment will be performed off-site whenever possible.

11. The Contractor shall be responsible for all maintenance, inspection, and repair to all erosion and sediment control measures throughout the construction period, and will ensure that all other protective devices are maintained and repaired in good and effective condition.

5.3 AIR QUALITY

The following BMPs recommended for construction of Alternatives A through D would avoid, minimize, or mitigate adverse effects to air quality:

1. Water all active construction areas at least twice daily.
2. Cover all trucks hauling soil and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
3. Pave, apply water two times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
4. Sweep all paved access roads daily (with water sweepers), parking areas, and staging areas at construction sites.
5. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
6. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.
7. Restrict traffic on site to reduce soil disturbance and the transport of material onto roadways.
8. Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.
9. The Tribe shall control emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), sulfur oxides (SOx), and carbon monoxide (CO) whenever reasonable and practicable by requiring all diesel-powered equipment be properly maintained and minimizing idling time to 5 minutes when construction equipment is not in use, unless per engine manufacturer's specifications or for safety reasons more time is required. Since these emissions would be generated primarily by construction equipment, machinery engines shall be kept in good mechanical condition to minimize exhaust emissions. The Tribe shall employ periodic and unscheduled inspections to accomplish the above mitigation.
10. The Tribe shall use diesel particulate filters, and low sulfur diesel fuel on all diesel equipment.
11. Prohibit engine tampering to increase horsepower, except when meeting manufacturer's specifications.
12. Locate diesel engines, motors, and equipment staging areas as far as possible from sensitive receptors.
13. Reduce construction-related trips of workers and equipment and material delivery by encouraging worker car pools and flex scheduling. The construction contractor should develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.

14. Utilize USEPA tier II or III equipment (2004 or newer model), using a minimum of 75 percent of the equipment's total horsepower. Implementation would reduce construction-related emissions by using equipment, which emits fewer pollutants.
15. Buildings shall be oriented to take advantage of solar heating and natural cooling, and use passive solar designs (residential, commercial, and industrial).
16. Use architectural coatings with low VOC content.
17. Solar, low-emission, central, or tank-less water heaters (residential and commercial), and increase wall and attic insulation that meets or exceeds Title 24 requirements (commercial).
18. Use light-colored roofing materials in construction to deflect heat away from buildings.
19. Use double-paned windows to reduce thermal loss in buildings.
20. Install automatic lighting on/off controls and energy-efficient lighting.
21. Use only natural gas or propane fired "fireplace" appliances.

The following BMPs recommended for the operation of Alternatives A through B would avoid, minimize, or mitigate adverse effects to air quality:

22. The Tribe shall provide on-site pedestrian facility enhancements such as walkways, benches, proper lighting, and building access, which are physically separated from parking lot traffic.
23. The Tribe shall provide adequate ingress and egress at entrances to the facilities to minimize vehicle idling and traffic congestion.
24. Design the project site to maximize bicycle access and provide secure bicycle parking/lockers in public parking facilities. Provide locker room/showers to employees who bicycle.
25. Use bicycles and/or low-emission vehicles for security patrols and other facility vehicle needs.
26. Buses shall comply with the California Air Resource Board's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, Section 2485) which requires that the driver of any diesel bus shall not idle for more than 5 minutes at any location, except in the case of passenger boarding where a ten minute limit is imposed, or when passengers are onboard. Furthermore the Tribe shall provide a "Drivers Lounge" for bus and truck drivers to discourage idling.
27. Implement a carpool/vanpool program e.g., carpool ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.
28. Electric landscaping equipment shall be used for commercial and educational facilities.
29. The Tribe shall purchase emission credits prior to the beginning of construction of the Proposed Project in the amount of 43 tons per year of nitrogen oxide and 28 tons per year of reactive organic gas emissions credits, for Alternatives A and 32 ton per year of nitrogen oxide emissions credits for Alternative B. Purchase of emission credits would offset estimated operational emissions such that no net increase in NOx or Rog would occur. This would result in the Proposed Project being in conformity with the applicable State Implementation Plan and therefore, result in a minimal adverse effect on regional air quality.

CLIMATE CHANGE

Mitigation Measures

Table 5-1 demonstrates compliance with the State's reduction goals. Implementation of the mitigation measures below and outlined in **Table 5-1** would minimize adverse cumulative effects due to GHG emissions for all alternatives.

TABLE 5-1
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGIES

Exec Order S-3-05 / AB 32 Strategy	Project Design / Mitigation Measure Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Project would be in compliance after implementation of **Mitigation Measure 30**.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Project would be in compliance after implementation of **Mitigation Measure 31.**
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	Project would be in compliance after implementation of **Mitigation Measure 32**.
Source: State of California, Environmental Protection Agency, and Climate Action Team, 2006	

30. Implementation of **Mitigation Measures 9** and **26** would reduce diesel engine idling.
31. A Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures.
32. The Tribe shall use low-flow appliances where feasible and utilize both potable and non-potable water to the extent practicable. The project proponent shall use drought resistant landscaping where practicable and provide "Save Water" signs near water faucets throughout the development.

The following mitigation measures, when implemented in combination with the components of the Alternatives A, B, C, and D as described in **Chapter 2.0**, would further reduce project related GHGs emissions. These measures also demonstrate consistency with the Attorney General's Proposed Global Warming Mitigation Measures (2007) (Office of the California Attorney General, 2007).

33. The Tribe shall plant trees and other carbon-sequestering vegetation on-site. The addition of photosynthesizing plants would reduce atmospheric carbon dioxide (CO_2) because plants use CO_2 for elemental carbon and energy production. Trees planted near buildings would result in additional benefits by providing shade to the buildings, reducing heat absorption and the need for air conditioning.
34. The Tribe shall use environmentally preferable materials to the extent practical for construction of facilities.

35. The Tribe shall require the use of energy efficient lighting, which would reduce indirect GHG emissions. Using energy efficient lighting would reduce the project's energy usage, thus, reducing the project's indirect GHG emissions.
36. The Tribe shall provide recycling bins in accessible areas on the project site. Recycling reduces GHG emissions from indirect energy use, landfills, and manufacturing of raw materials.
37. The Tribe shall make use of on-site renewable energy and co-generation, where appropriate. Generation of renewable energy and co-generation would reduce indirect GHG emissions.
38. The Tribe shall incorporate advanced lighting design and include daylighting, where appropriate. Advanced lighting design and day lighting would reduce project related GHG emissions by reducing electrical energy usage.
39. The Tribe shall use solar hot water heaters where appropriate. The use of solar hot water heaters would reduce project related GHG emissions by reducing electrical energy usage.
40. The Tribe shall implement **Mitigation Measures 9**, **11**, **13** through **15**, and **17** through **28** to further reduce GHG emission from project related sources.

<u>The following mitigation measure shall be implemented for Alternative A to reduce project related GHGs emissions below 25,000 MT:</u>

<u>41. The Tribe shall purchase 11,021 MTs of AB 32 compliant GHG emission credits.</u>

<u>The following mitigation measure shall be implemented for Alternative B to reduce project related GHGs emissions below 25,000 MT:</u>

<u>42. The Tribe shall purchase 1,693 MTs of AB 32 compliant GHG emission credits.</u>

5.4 BIOLOGICAL RESOURCES

The following mitigation measures are recommended for Alternatives A through D to avoid or minimize impacts to special-status and/or nesting migratory birds from construction activities associated with the project alternatives:

1. If any construction activities are scheduled to occur during the nesting season (approximately March through September), pre-construction bird surveys shall be conducted. Pre-construction surveys for nesting migratory bird species shall be conducted by a biologist throughout all areas of suitable habitat that are within 500 feet of any proposed construction activity. The surveys shall occur no more than 14 days prior to the scheduled onset of construction activities. If construction is delayed or halted for more than 14 days, another pre-construction survey for nesting bird species shall be conducted. If no nesting birds are detected during the pre-construction surveys no additional surveys or mitigation measures are required.
2. If special-status nesting bird species (e.g., burrowing owl, Le Conte's thrasher) are observed within 500 feet of the construction area during the surveys, USFWS and/or CDFG

shall be contacted. Through consultation with USFWS and/or CDFG, an appropriate course of action, acceptable setbacks, and a suitable monitoring plan shall be determined. Avoidance setbacks shall be established around all active nest locations via stakes and high visibility fencing. The nesting bird setbacks shall be completely avoided during the duration of construction activities and the fencing must remain intact. The fencing may be removed when a qualified biologist confirms that the nest(s) is no longer occupied and all young have fledged.

3. If migratory nesting bird species (i.e., non-special-status birds) are observed within 500 feet of the construction area during the surveys, appropriate avoidance setbacks shall be established by a qualified biologist. The size and scale of nesting bird avoidance setbacks is dependent upon the species of nesting bird observed and the habitat that the nest occurs in. Avoidance setbacks shall be established around all active nest locations via stakes and high visibility fencing. The nesting bird setbacks shall be completely avoided during the duration of construction activities and the fencing must remain intact. The qualified biologist shall also determine an appropriate monitoring plan and will decide if construction monitoring is necessary during the duration of construction activities. Again, monitoring requirements are dependent upon the species of nesting bird observed, the habitat the nests are contained in, and the number of nests observed. The setback fencing may be removed when a qualified biologist confirms that the nest(s) is no longer occupied and all fledglings have left.
4. If impacts (i.e., take) to special-status or migratory nesting bird species are unavoidable, consultation with USFWS and/or CDFG shall be initiated. Through consultation, an appropriate and acceptable course of action shall be established.

The following mitigation measures recommended for Alternatives A and B only should be implemented to avoid or minimize project-related adverse effects to the desert tortoise (*Gopherus agassizii*):

5. The Tribe shall designate a "biological representative" (BR) for the proposed project. The~~is individual~~ BR will administer and manage the Tribe's compliance with the conservation measures and any other required terms and/or conditions resulting from Section 7 consultation with USFWS regarding desert tortoise. The Tribe shall provide USFWS with the name(s) and qualifications of the chosen BR(s) for review/approval.
6. Within one day prior to the anticipated date of installation of an exclusion fence (USFWS 2005; **Appendix T** of the Final EIS/TEIR), a USFWS-approved biological monitor shall conduct a preconstruction survey to ensure no Mojave desert tortoise or their sign are detected. Any potential burrow sites that are confirmed to be unoccupied and are within the construction footprint shall be collapsed or otherwise blocked to prevent occupancy where the Mojave desert tortoise would be at risk. Should Mojave desert tortoise be detected, the USFWS-approved biological monitor shall halt the anticipated installation of the exclusion fencing in that area until the tortoise exits the project site on its own accord. The USFWS-approved biological monitor will notify the BR immediately. The BR will contact the USFWS within 24 hours to report the findings and request guidance in the event that the Mojave desert tortoise does not exit the project site.

~~5.~~7. If no Mojave desert tortoise or its sign is detected during the preconstruction survey, ~~Prior to the onset of construction activities,~~ USFWS-approved desert tortoise exclusionary fencing (USFWS 2005; **Appendix T~~M~~** of the Final EIS/TEIR) shall be installed around the perimeter of the entire project site prior to the onset of construction activities. The ~~BR or another~~ USFWS-authorized ~~desert tortoise~~ biological monitor shall supervise installation of the exclusionary fencing in order to ensure proper installation and adequacy. The exclusionary fencing must remain intact and must surround the entire project site until all construction activities are completed.

~~6.~~8. After installation of the exclusionary fence and prior to the onset of construction activities, the USFWS-approved biological monitor ~~a qualified biologist~~ shall conduct a preconstruction desert tortoise clearance survey within the project site. This survey shall be conducted in accordance with the ~~2010~~ 1992 USFWS protocol (**Appendix T**), in order to ensure that there are no Mojave desert tortoise and/or occupied burrows within the project site. ~~which updates previously accepted versions of the survey protocol (such as the 1992 USFWS protocol, included for reference purposes in Appendix M) in order to locate any desert tortoise and/or occupied burrows within the project site. Any required excavation of desert tortoise burrows shall be done with hand tools, either by or under the direction of the BR or another USFWS authorized biologist. Any potential desert tortoise burrow sites that are confirmed unoccupied that are within the project site shall be collapsed or otherwise blocked following the 2010 USFWS protocol to prevent future occupancy. Any and all activities that directly involve desert tortoise (i.e., handling of desert tortoise and/or its eggs and excavation of burrows) shall be conducted by the BR or another USFWS-authorized biologist in accordance with the recommended protocol (Desert Tortoise Council 1999; Appendix M). Any desert tortoise or desert tortoise eggs observed within the project site during the pre-construction survey shall be relocated by the BR or another USFWS authorized biologist to BLM property, which is immediately adjacent to the project site. The BLM has agreed to receive a small number of tortoises, if necessary for relocation purposes.~~

9. The BR or another USFWS authorized biological monitor shall be present at least once a week to ensure the integrity of the exclusionary fencing is maintained.~~maintain the desert tortoise exclusionary fence and to provide all construction personnel with a desert tortoise awareness briefing. Educational printed materials that summarize the desert tortoise awareness information shall be provided to all personnel and shall be present on-site during all construction activities. The desert tortoise awareness briefing shall include, but is not be limited to the following:~~

10. The BR or the USFWS-approved biological monitor shall remain on-call throughout construction in the event that a Mojave desert tortoise wanders into the construction site. In the unlikely event that any Mojave desert tortoises are encountered on-site during construction activities, the occurrence(s) shall be reported to the construction supervisor and the BR and construction activities shall seize immediately. The BR will contact the USFWS within 24 hours of the sighting. Construction activities will not commence until authorized by the USFWS or until the Mojave desert tortoise exits the project site on its own accord.

~~7.~~11. A Raven Management Plan shall be prepared to minimize attracting common ravens during construction activities, in accordance with Boarman's (2002) *Reducing Predation by Common Ravens on Desert Tortoises in the Mojave and Colorado Deserts*. The BR shall be responsible for implementing the management practices identified within the Raven Management Plan. The Raven Management Plan shall include, at minimum:

a. A Mojave desert tortoise awareness training shall be presented to all construction personnel prior to commencement of construction activities. The USFWS-approved biological monitor shall present the Mojave desert tortoise awareness training and provide educational pamphlets to the crew members. The Mojave desert tortoise awareness briefing shall include, but is not be limited to, the following information:

- Construction personnel shall be informed about the federally threatened status of the Mojave desert tortoise, shall be shown what this species and its eggs look like, and shall be educated about the protection measures designed to reduce potential project-related effects on this species. Construction personnel shall be provided with instruction regarding what to do if they encounter a Mojave desert tortoise and/or its eggs within the project site during construction activities.
- Construction personnel shall be advised that handling, harming, or harassing a Mojave desert tortoise is illegal and is a violation of the FESA. Construction personnel shall be advised that penalties of up to $25,000 and six months imprisonment are the consequences for unauthorized handling of a listed species. Construction personnel shall sign a document, which indicates that they have received the Mojave desert tortoise briefing and that they understand its contents.
- Measures to minimize attracting ravens shall be discussed to crew members to be followed during all construction activities associated with the project site.

b. Trash bins and cans shall be covered so that trash within the containers shall not be accessible to ravens. Trash shall be picked up and removed daily from the construction site.

12. Post-construction reporting shall be provided to the USFWS within 90 days of completion of construction

~~8. Any desert tortoises encountered on-site during construction activities shall be reported to the construction supervisor and the BR immediately.~~

~~9. The Tribe or the BR shall contact the USFWS immediately if it becomes aware that a desert tortoise has been killed or injured by project activities. At that time, the USFWS and the Tribe shall review the circumstances surrounding the incident to determine whether additional protective measures are required. Project activities may continue pending the outcome of the review, provided that the Tribe's proposed protective measures and any appropriate terms and/or conditions of a Biological Opinion issued by the USFWS have been and continue to be fully implemented.~~

~~10. Trash bins and cans shall be covered so that trash within the containers shall not be accessible to ravens. Trash shall be picked up and removed daily from parking lots and other outdoor areas. Outdoor ponds and/or fountains shall be monitored on a weekly basis for a period of not less than three months to determine whether these features attract ravens.~~

~~If monitoring concludes that the ponds and/or fountains attract ravens, USFWS shall be consulted to develop a plan for controlling raven use of these features.~~

The following mitigation measures recommended for Alternatives C and D only shall be implemented to avoid or minimize project-related impacts to potentially jurisdictional wetlands, other waters of the U.S., or the arroyo toad and its aquatic habitats:

~~11.~~13. The project design shall be reconfigured in order to completely avoid any potentially jurisdictional wetland or other waters of the U.S.

~~12.~~14. If potentially jurisdictional wetlands or other waters of the U.S. cannot be avoided, the following mitigation measures shall be implemented:

- A formal wetland delineation shall be conducted within the project site and submitted to the USACE for verification of jurisdictional wetlands and/or other waters of the U.S.
- Prior to the onset of construction activities, the Tribe shall obtain the following permits:
  - The appropriate Section 404 CWA Nationwide Permit from the USACE, which permits activities that involve the discharge of dredged and/or fill materials into jurisdictional wetlands and/or other waters of the U.S. Typical 404-permit mitigation occurs at a ratio of 1:1 acres created versus impacted and 2:1 acres restored versus impacted, though individual permit conditions may vary; and
  - Section 401 CWA water quality certification through the Regional Water Quality Control Board.
- If permits are required, a detailed mitigation and monitoring plan shall be designed for the proposed project that includes all the necessary details regarding the size, location, and whether or not aquatic features shall be created or restored. The mitigation and monitoring plan shall include specific information regarding on-site aquatic feature preservation, monitoring stipulations, reporting requirements, responsibilities of the Applicant, and performance success criteria. The mitigation and monitoring plan shall meet the specified requirements of and be written in accordance with the 401, 404, and 1600 permits, if applicable.

The following mitigation measure shall be implemented for Alternatives C and D to minimize project-related adverse effects to Stephen's kangaroo rat (*Dipodomys stephensi*), should it occur on-site:

15~~14~~. Prior to the onset of construction activities, the Tribe shall complete Section ~~10~~ 7 Consultation with the USFWS regarding the Stephen's kangaroo rat. If the USFWS determines that the Stephen's kangaroo rat may occur on-site, determinant-level surveys shall be conducted and appropriate mitigation and avoidance measures recommended by the USFWS shall be implemented prior to and during construction and operation activities.

5.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

The following regulatory requirements and recommended BMPs and mitigation measures are applicable to Alternatives A through D and would avoid, minimize, or mitigate adverse effects to cultural and paleontological resources:

REGULATORY REQUIREMENTS

Any inadvertent discovery of archaeological resources shall be subject to Section 106 of the National Historic Preservation Act as amended (36 CFR 800), the Native American Graves Protection and Repatriation Act (NAGPRA)(25 USC 3001 *et seq*.), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm). Specifically, procedures for post review discoveries without prior planning pursuant to 36 CFR 800.13 shall be followed.

MITIGATION MEASURES

Alternatives A, B, C, and D

The purpose of the following mitigation measures is to minimize the potential adverse effect of construction activities to previously unknown archaeological resources in the case of inadvertent discovery:

1. All work within 50 feet of the potential archaeological find shall be halted until the BIA archaeologist or other ~~a~~ professional archaeologist, or paleontologist if the find is of a paleontological nature, who meets Secretary of the Interior's qualifications, can assess the significance of the find.
2. If any archaeological find is determined to be significant by the archaeologist, or paleontologist as appropriate, then representatives of the Tribe shall meet with SHPO ~~the archaeologist, or paleontologist,~~ to determine the appropriate course of action, including the development of a Treatment Plan, if necessary.
3. All significant cultural or paleontological materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional archaeologist, or paleontologist, according to current professional standards.
4. If human remains are discovered during ground-disturbing activities on Tribal lands, pursuant to NAGPRA, the Tribal Official and BIA representative shall be contacted immediately. No further disturbance shall occur until the Tribal Official and BIA representative have made the necessary findings as to the origin and disposition. If the remains are determined to be of Native American origin, the tribal ~~BIA~~ representative shall notify a Most Likely Descendant (MLD). The MLD is responsible for recommending the appropriate disposition of the remains and any grave goods.

5.6 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

The following provisions of the MSA are applicable to Alternatives A and B, and would avoid, minimize, or mitigate adverse socioeconomic effects:

1. In accordance with Section 5(A) of MSA, the Tribe agrees to pay the City amounts equal to the service, development, and impact fees which, if the parcels were not in trust status, would be charged by the City and other local agencies at the time of any and all project development(s) on trust lands (including payments to the City and the Barstow Fire Protection District). The Tribe shall also make payments to the Barstow Unified School District equal to the service, development, and impact fees which the District would receive if the parcels were not taken into trust.
2. In accordance with Section 10 of the MSA, subject to tribal employment preferences, the Tribe shall work in good faith with the City to employ qualified City residents at the Tribe's resort facilities to the extent permitted by applicable law. The Tribe shall offer training programs to assist City residents in becoming qualified for positions at the Resort to the extent permitted by applicable law.
3. In accordance with Section 12 of the MSA, the Tribe shall, upon the City's approval of the Tribe's construction plans and the City's completion of all building plan checks, make a one-time payment to the City of $40,000 for the establishment of a Problem Gambling Fund. Thereafter, the Tribe shall make annual contributions to the City in the amount of $40,000 to help fund local problem gaming diversion/assistance/counseling programs.
4. In accordance with Section 13 of MSA, the Tribe shall compensate the City by making gaming revenue payments of 4.3 percent of "Net Win" on Class II and Class III games of chance, as identified in IGRA.

5.7 TRANSPORTATION/CIRCULATION

The following provisions are identified in the Tribe's MSA with the City and are applicable to the development of Alternatives A and B.

- In accordance with Section 6 of the MSA, the Tribe has agreed to pay all required traffic mitigation fees consistent with the City's fee programs and ordinances and pay for all road improvements that are reasonable and necessary.
- The Tribe has also agreed that if an increase in traffic is caused by the Tribe's undertaking of other development projects on Trust Lands and additional road improvements or expansions are required, the Tribe shall grant suitable rights-of-way to the City in order to accommodate the necessary road improvements or expansions and make the necessary improvements.

MITIGATION MEASURES

The following mitigation measures are recommended for Alternatives A and B and should be implemented in the opening year to reduce potential adverse effects to the area transportation and circulation network:

Lenwood Road/Project Access Intersection:
Signalize intersection when signal warrants are met. Signal timing at the driveway shall be developed to minimize southbound left-turn queuing into the site.

- Reconfigure lane geometry as follows:

    1. Northbound: one dedicated right-turn lane, and one thru-land.
    2. Southbound: two dedicated left-turn lanes, one thru-lane. Southbound left-turn pockets shall be sized appropriately to accommodate peak demand to the site.
    3. Westbound: one dedicated left-turn lane, and two dedicated right-turn lanes.

Implementation of the above mitigation measure would result in an acceptable level of service at Lenwood Road/Project Access intersection. The above mitigation would require the approval of an encroachment permit by the City.

The above mitigation measure is recommended for Alternatives A and B in the cumulative year 2035 to reduce potential adverse effects to the area transportation and circulation network.

<u>The Tribe would provide a fair share contribution to the implementation the following mitigation measures, which are recommended for Alternatives A and B in the cumulative year 2035 to reduce potential adverse effects to queuing on the I-15 southbound/northbound ramps at Lenwood Road and I-15 southbound/northbound ramps at Outlet Center Drive:</u>

- <u>Require all casino/hotel employees driving northbound on I-15 to utilize the Outlet Center Drive interchange.</u>
- <u>Require that casino/hotel literature list the Outlet Center Drive interchange as the main access to the casino/hotel.</u>
- <u>Require the traffic control personnel direct the majority of traffic to the Outlet Center Drive interchange for special events.</u>
- <u>Provide signs on NB I-15 south of the Outlet Center Drive interchange directing casino/hotel traffic to use the Outlet Center Drive interchange.</u>
- <u>Signalize the two ramps at the Outlet Center Drive interchange. This will improve interchange operation.</u>
- <u>The Tribe would provide a fair share contribution to future improvements to the I-15 NB off-ramp at Lenwood Road.</u>

5.8 LAND USE

With the incorporation of the provisions outlined within the project description, implementation of Alternatives A, B, C, and D would result in minimal direct, indirect, and cumulatively considerable adverse effects. No mitigation is warranted.

5.9 PUBLIC SERVICES

The following measures are conditions of the MSA between the Tribe and the City and are applicable to Alternatives A and B.

1. In accordance with Section 8 of MSA, the Tribe would obtain their potable supply from Golden State Water Company.
2. In accordance with Section 7 of the MSA, the Tribe shall connect to the City's existing sewer collection system. The Tribe shall pay sewer connection fees and monthly sewer service charges, obtain required easements for sewer infrastructure if needed, construct to City sewer infrastructure standards, and pay all costs of constructing sewer infrastructure (even if located outside of the Trust Lands until sewer service is completed and inspected.
3. In accordance with Section 9 of the MSA, the Tribe shall utilize the City's contracted solid waste disposal company for all solid waste and recycled materials generated and pay all associated fees for these services.
4. In accordance with Section 5(B) of the MSA, if the City determines that it is necessary to contract outside of the City for approvals or inspections related to the proposed development, the Tribe would be required to pay the City on a monthly basis for the actual costs of the subcontracted services. These payments are not to be a condition of the commencement of the work and shall be made within 30 days of billing.
5. In accordance with Section 4 of the MSA, the City agrees to provide police services including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes. The police department would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. Additionally, the Tribe would employ security personnel and provide surveillance throughout the proposed facilities. Security personnel would work cooperatively with the City Police Department.
6. In accordance with Section 4(A) of the MSA, the Tribe shall utilize its best efforts to reach a contract directly with San Bernardino County for prosecutorial and defense services (i.e., District Attorney/Public Defender), and costs for such services shall be paid by the Tribe directly to the County. If the Tribe is unable to reach terms with the County for prosecution and defense services, then the Parties shall conduct further negotiations regarding the provision of such services to the Tribe.
7. In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for the purchase of a fully equipped Emergency Medical Services Response Vehicle which shall be housed at Station 363 located at 2600 West Main Street, Barstow, CA for the first two years of resort operations.
8. In accordance with Section 4(B)(2) of the MSA, to respond more effectively to high-rise emergencies at any structure on trust lands between one and four stories, the Barstow Fire Protection District has agreed to relocate its ladder fire truck from Station 361 located at 861 Barstow Road, Barstow, CA to Station 363 located at 2600 West Main Street, Barstow, CA for the first two years of resort operation.

9. As stated in Section 4(B)(3) of the MSA, the Barstow Fire Protection District and the City have advised that a ladder truck is no typically used to fight fires on buildings more than four stories in height and that buildings over four stories in height require entry by Fire Department personnel and personal action at the burning site. If a structure exceeding four stories in height is constructed by the Tribe on trust lands, the Tribe shall pay one half of the actual costs of training fire personnel.
10. In Section 4(C) of the MSA, within the first two years of resort operation the Tribe when requested by the City, shall dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. This dedicated land will be used by the City to construct new fire and police stations when, and if, deemed necessary by the City in its sole discretion.

The following measures apply to Alternatives C and D:

11. The Tribe shall either develop its own deputized Tribal Police Department, contract with a nearby professional police department for services, or enter into an agreement with San Diego County that will specify fair and appropriate compensation for the provision of law enforcement services to serve the proposed developments relative to the anticipated increase in demand for such services.

~~The Tribe shall negotiate appropriate compensation to California Department of Forestry and Fire Protection (CDF) for services provided to the casino developments.~~

12. Prior to operation of Alternatives C and D, a technical report including a critical incident tasking/staffing analysis shall be conducted by a qualified fire expert or fire consultant organization mutually acceptable to the Tribe and San Diego County. The report shall evaluate building construction, occupant load, access, water supply, defensible space, built in fire protection, exiting, emergency medical needs including service and impacts, fire suppression, apparatus, personnel, training, travel time, aid agreements, and outside contracts. The Tribe shall make a good faith effort to enter into an agreement with San Diego County that will specify fair and appropriate compensation for the provision of fire protection services. Recommendations of the technical report shall be incorporated into the project design and used as the basis for negotiating the appropriate level of compensation to County.

BMPs

The following BMPs apply to Alternatives A through D to minimize the potential for fire hazards during construction activities.

1. Staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation and other materials that could serve as fuel for combustion. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.

2. Any construction equipment that normally includes a spark arrester shall be equipped with an arrestor in good working order.

5.10 NOISE

BMPs

The following BMPs are recommend for Alternatives A through D to minimize adverse noise effects from construction activities and operation of the project alternatives:

1. Engine-powered construction equipment shall be fitted with adequate mufflers and enclosures as supplied by the manufacturer, maintained in good condition.
2. Potential noise impacts from loading dock operations will be mitigated by requiring that loading dock use be limited to daytime hours (7 AM to 7 PM).
3. All powered equipment will comply with applicable local, State, and Federal regulations, and all such equipment shall be fitted with adequate mufflers according to the manufacturer's specifications to minimize construction noise effects.
4. HVAC equipment shall be shielded to reduce noise.
5. To the extent feasible, pile driving and other construction activities that have the potential to substantially increase ambient nighttime noise levels over existing conditions, shall not occur prior to 9:00 AM or after 5:00 PM.

5.11 HAZARDOUS MATERIALS

REGULATORY REQUIREMENTS

As discussed under **Section 5.2**, a SWPPP would be developed for the selected alternative, in accordance with the NPDES permitting process under the CWA. BMPs reducing potential adverse effects from the use of hazardous materials would also be incorporated into the SWPPP developed for the selected alternative.

SWPPP BMPs

The following BMPs are recommended for Alternatives A through D to minimize or eliminate potential contamination to environmental resources (such as soil, surface waters, and groundwater) from the use and storage of hazardous materials during construction activities. The BMPs to be included within the site-specific SWPPP shall include, but not be limited to, the following:

1. To reduce the potential for accidental release, fuel, oil, and hydraulic fluids shall be transferred directly from a service truck to construction equipment and shall not be stored on site.
2. Catch-pans shall be placed under equipment to catch potential spills during servicing.
3. Refueling shall be conducted only with approved pumps, hoses, and nozzles.
4. All disconnected hoses shall be placed in containers to collect residual fuel from the hose.
5. Vehicle engines shall be shut down during refueling.

6. No smoking, open flames, or welding shall be allowed in refueling or service areas.
7. Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill.
8. Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents.
9. Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, state, and federal regulations.
10. All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance, refueling, and storage areas shall be inspected monthly.
11. Results of inspections shall be recorded in a logbook that shall be maintained on site.
12. The amount of hazardous materials used in project construction and operation shall be kept at the lowest volumes needed.
13. The least toxic material capable of achieving the intended result shall be used to the extent practicable.

MITIGATION MEASURES

The following mitigation measures are recommended for Alternatives A through D and should be implemented to reduce potential adverse effects from hazardous waste management activities:

14. In the event that contaminated soil and/or groundwater are encountered during construction related earth-moving activities, all work shall be halted until a professional hazardous materials specialist or other qualified individual assesses the extent of contamination. If contamination is determined to be hazardous, representatives of the Tribe shall consult with the U.S. Environmental Protection Agency to determine the appropriate course of action, including development of a Sampling and Remediation Plan if necessary.
15. A hazardous materials and hazardous waste minimization program shall be developed, implemented, and reviewed annually by the Tribe to determine if additional opportunities for hazardous materials and hazardous waste minimization are feasible, for both project construction and operation.
16. Use of pesticides and toxic chemicals shall be minimized to the greatest extent feasible in landscaping; or less toxic alternatives shall be used.

5.12 AESTHETICS

BMPS

The following BMPs are recommended for Alternatives A through D and will reduce the impact of facility lighting on the surrounding environment to a minimal level:

1. Placement of floodlights on buildings shall be designed so as not to cast light or glare offsite.
2. Shielding, such as with a horizontal shroud, shall be used for all outdoor lighting so as to ensure it is downcast.

3. Timers shall be utilized so as to limit lighting to necessary times.

CHAPTER 5.0

MITIGATION MEASURES

CHAPTER 5.0 MITIGATION MEASURES

The Council on Environmental Quality (CEQ) NEPA Regulations define mitigation as "avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitating, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, compensating for the impact by replacing or providing substitute resources or environments" (40 CFR § 1508.20). These principles have been applied to guide design and siting criteria for the project alternatives.

As described more fully in **Chapter 2.0**, alternatives integrate regulatory requirements, conditions of Municipal Service Agreements (MSA), and Best Management Practices (BMPs) into the overall project design in an effort to minimize the potentially adverse environmental effects identified in **Chapter 4.0**, including indirect and cumulatively adverse effects. When appropriate, mitigation measures have been recommended. Relevant regulatory requirements, conditions of the MSA, BMPs, and recommended mitigation measures are summarized below. All mitigation is enforceable because it is 1) inherent to the project design, 2) under terms of the MSA (**Appendix D** of the Draft EIS/TEIR), and/or 3) required through provisions of federal or state statute, where applicable.

5.1 LAND RESOURCES

BARSTOW SITE

In accordance with Section 2 of the Tribe's MSA with the City of Barstow (City), the Tribe has agreed to enact laws applicable to the trust lands and shall require that all tribal development projects on the trust lands shall be used and developed in a manner that is consistent with the Barstow Municipal Code in effect at the time of any project development. The Tribe has also agreed to adopt building standards and codes no less stringent than those adopted by the City and prior to the use of any structure provide the City, at the Tribe's expense, written certification from the project's architect of record that said structures have been constructed in accordance with said standards and code provisions. Further, the Tribe has agreed to ensure compliance with the City's adopted codes including those pertaining to building standards and to contract with the City to provide planning, building and safety, fire prevention, and public works personnel to review any and all construction plans and inspect construction of all improvements on or off the trust lands. With the incorporation of the MSA provisions identified above, development of Alternatives A and B would result in minimal direct, indirect, and cumulatively considerable adverse effects to land resources.

LOS COYOTES SITE

With the incorporation of the mitigation measures identified in **Section 5.2** below, development of Alternatives A and B would result in minimal direct, indirect, and cumulatively considerable adverse effects to land resources.

5.2 WATER RESOURCES

The following regulatory requirements and BMPs recommended for Alternatives A through D would avoid, minimize, or mitigate adverse effects to water resources:

REGULATORY REQUIREMENTS

In accordance with Section 402 of the Clean Water Act, the Tribe will file with the United States Environmental Protection Agency (USEPA) a Notice of Intent for coverage under the Phase II NPDES General Permit for Stormwater Discharges Associated with Construction Activities (General Permit). Accordingly, a Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to any ground disturbance at the project site and shall include practices to reduce potential surface water contamination during storm events. The SWPPP will outline site-specific BMPs designed to comply with the water quality and soil erosion provisions of the General Permit.

SWPPP BMPS

The purpose of the following BMPs is to minimize or eliminate pollution of storm water from construction-related sources; some BMPs apply to several pollution sources. The BMPs included within the site-specific SWPPP shall include, but are not limited to, the following:

1. Major grading activities will be scheduled during the dry season.
2. Erosion control blankets or jute netting will be placed in rough graded ditches and then hydro-seeded.
3. Fiber rolls and straw wattles will be installed through the construction site around the down-slope perimeter of the construction site.
4. Hay or straw mulch and tackifier will be used as temporary measure for stabilizing disturbed areas.
5. Landscaping will be managed to minimize erosion and sedimentation according to the following practices:
   - Rock filter berms will be placed across roadways.
   - Sediment basins will be installed throughout the project site and will be removed during the final phase of construction.
   - Silt fencing will be placed down-slope of exposed soil areas and around temporary soil stockpiles.
   - Sacked rock filters will be placed around new curbs and drainage inlets around the project site until the soils are stabilized with permanent landscaping.
6. Catch basins, junction boxes, culverts, and outfall structures/energy dissipaters will be used throughout the grading plan.
7. Detention basins will be constructed to provide for sediment settling.
8. Ingress/egress points to the project site will be stabilized and graded.
9. A wash station will be erected at the egress point of the project site if dirt and mud tracking from the site is anticipated.
10. Cleaning, fueling, maintenance, and repair of construction vehicles and equipment will be performed off-site whenever possible.

11. The Contractor shall be responsible for all maintenance, inspection, and repair to all erosion and sediment control measures throughout the construction period, and will ensure that all other protective devices are maintained and repaired in good and effective condition.

5.3 AIR QUALITY

The following BMPs recommended for construction of Alternatives A through D would avoid, minimize, or mitigate adverse effects to air quality:

1. Water all active construction areas at least twice daily.
2. Cover all trucks hauling soil and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
3. Pave, apply water two times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
4. Sweep all paved access roads daily (with water sweepers), parking areas, and staging areas at construction sites.
5. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
6. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.
7. Restrict traffic on site to reduce soil disturbance and the transport of material onto roadways.
8. Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.
9. The Tribe shall control emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), sulfur oxides (SOx), and carbon monoxide (CO) whenever reasonable and practicable by requiring all diesel-powered equipment be properly maintained and minimizing idling time to 5 minutes when construction equipment is not in use, unless per engine manufacturer's specifications or for safety reasons more time is required. Since these emissions would be generated primarily by construction equipment, machinery engines shall be kept in good mechanical condition to minimize exhaust emissions. The Tribe shall employ periodic and unscheduled inspections to accomplish the above mitigation.
10. The Tribe shall use diesel particulate filters, and low sulfur diesel fuel on all diesel equipment.
11. Prohibit engine tampering to increase horsepower, except when meeting manufacturer's specifications.
12. Locate diesel engines, motors, and equipment staging areas as far as possible from sensitive receptors.
13. Reduce construction-related trips of workers and equipment and material delivery by encouraging worker car pools and flex scheduling. The construction contractor should develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.

14. Utilize USEPA tier II or III equipment (2004 or newer model), using a minimum of 75 percent of the equipment's total horsepower. Implementation would reduce construction-related emissions by using equipment, which emits fewer pollutants.
15. Buildings shall be oriented to take advantage of solar heating and natural cooling, and use passive solar designs (residential, commercial, and industrial).
16. Use architectural coatings with low VOC content.
17. Solar, low-emission, central, or tank-less water heaters (residential and commercial), and increase wall and attic insulation that meets or exceeds Title 24 requirements (commercial).
18. Use light-colored roofing materials in construction to deflect heat away from buildings.
19. Use double-paned windows to reduce thermal loss in buildings.
20. Install automatic lighting on/off controls and energy-efficient lighting.
21. Use only natural gas or propane fired "fireplace" appliances.

The following BMPs recommended for the operation of Alternatives A through B would avoid, minimize, or mitigate adverse effects to air quality:

22. The Tribe shall provide on-site pedestrian facility enhancements such as walkways, benches, proper lighting, and building access, which are physically separated from parking lot traffic.
23. The Tribe shall provide adequate ingress and egress at entrances to the facilities to minimize vehicle idling and traffic congestion.
24. Design the project site to maximize bicycle access and provide secure bicycle parking/lockers in public parking facilities. Provide locker room/showers to employees who bicycle.
25. Use bicycles and/or low-emission vehicles for security patrols and other facility vehicle needs.
26. Buses shall comply with the California Air Resource Board's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, Section 2485) which requires that the driver of any diesel bus shall not idle for more than 5 minutes at any location, except in the case of passenger boarding where a ten minute limit is imposed, or when passengers are onboard. Furthermore the Tribe shall provide a "Drivers Lounge" for bus and truck drivers to discourage idling.
27. Implement a carpool/vanpool program e.g., carpool ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.
28. Electric landscaping equipment shall be used for commercial and educational facilities.
29. The Tribe shall purchase emission credits prior to the beginning of construction of the Proposed Project in the amount of 43 tons per year of nitrogen oxide and 28 tons per year of reactive organic gas emissions credits, for Alternatives A and 32 ton per year of nitrogen oxide emissions credits for Alternative B. Purchase of emission credits would offset estimated operational emissions such that no net increase in NOx or Rog would occur. This would result in the Proposed Project being in conformity with the applicable State Implementation Plan and therefore, result in a minimal adverse effect on regional air quality.

CLIMATE CHANGE

Mitigation Measures

Table 5-1 demonstrates compliance with the State's reduction goals. Implementation of the mitigation measures below and outlined in **Table 5-1** would minimize adverse cumulative effects due to GHG emissions for all alternatives.

TABLE 5-1
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGIES

Exec Order S-3-05 / AB 32 Strategy	Project Design / Mitigation Measure Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Project would be in compliance after implementation of **Mitigation Measure 30**.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Project would be in compliance after implementation of **Mitigation Measure 31.**
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	Project would be in compliance after implementation of **Mitigation Measure 32**.
Source: State of California, Environmental Protection Agency, and Climate Action Team, 2006	

30. Implementation of **Mitigation Measures 9** and **26** would reduce diesel engine idling.
31. A Solid Waste Management Plan (SWMP) shall be adopted by the Tribe that addresses recycling and solid waste reduction on-site. The plan shall have at least a 50 percent diversion goal, which includes reduction, recycling, and reuse measures.
32. The Tribe shall use low-flow appliances where feasible and utilize both potable and non-potable water to the extent practicable. The project proponent shall use drought resistant landscaping where practicable and provide "Save Water" signs near water faucets throughout the development.

The following mitigation measures, when implemented in combination with the components of the Alternatives A, B, C, and D as described in **Chapter 2.0**, would further reduce project related GHGs emissions. These measures also demonstrate consistency with the Attorney General's Proposed Global Warming Mitigation Measures (2007) (Office of the California Attorney General, 2007).

33. The Tribe shall plant trees and other carbon-sequestering vegetation on-site. The addition of photosynthesizing plants would reduce atmospheric carbon dioxide (CO_2) because plants use CO_2 for elemental carbon and energy production. Trees planted near buildings would result in additional benefits by providing shade to the buildings, reducing heat absorption and the need for air conditioning.
34. The Tribe shall use environmentally preferable materials to the extent practical for construction of facilities.

35. The Tribe shall require the use of energy efficient lighting, which would reduce indirect GHG emissions. Using energy efficient lighting would reduce the project's energy usage, thus, reducing the project's indirect GHG emissions.
36. The Tribe shall provide recycling bins in accessible areas on the project site. Recycling reduces GHG emissions from indirect energy use, landfills, and manufacturing of raw materials.
37. The Tribe shall make use of on-site renewable energy and co-generation, where appropriate. Generation of renewable energy and co-generation would reduce indirect GHG emissions.
38. The Tribe shall incorporate advanced lighting design and include daylighting, where appropriate. Advanced lighting design and day lighting would reduce project related GHG emissions by reducing electrical energy usage.
39. The Tribe shall use solar hot water heaters where appropriate. The use of solar hot water heaters would reduce project related GHG emissions by reducing electrical energy usage.
40. The Tribe shall implement **Mitigation Measures 9**, **11**, **13** through **15**, and **17** through **28** to further reduce GHG emission from project related sources.

The following mitigation measure shall be implemented for Alternative A to reduce project related GHGs emissions below 25,000 MT:

41. The Tribe shall purchase 11,021 MTs of AB 32 compliant GHG emission credits.

The following mitigation measure shall be implemented for Alternative B to reduce project related GHGs emissions below 25,000 MT:

42. The Tribe shall purchase 1,693 MTs of AB 32 compliant GHG emission credits.

5.4 BIOLOGICAL RESOURCES

The following mitigation measures are recommended for Alternatives A through D to avoid or minimize impacts to special-status and/or nesting migratory birds from construction activities associated with the project alternatives:

1. If any construction activities are scheduled to occur during the nesting season (approximately March through September), pre-construction bird surveys shall be conducted. Pre-construction surveys for nesting migratory bird species shall be conducted by a biologist throughout all areas of suitable habitat that are within 500 feet of any proposed construction activity. The surveys shall occur no more than 14 days prior to the scheduled onset of construction activities. If construction is delayed or halted for more than 14 days, another pre-construction survey for nesting bird species shall be conducted. If no nesting birds are detected during the pre-construction surveys no additional surveys or mitigation measures are required.
2. If special-status nesting bird species (e.g., burrowing owl, Le Conte's thrasher) are observed within 500 feet of the construction area during the surveys, USFWS and/or CDFG

shall be contacted. Through consultation with USFWS and/or CDFG, an appropriate course of action, acceptable setbacks, and a suitable monitoring plan shall be determined. Avoidance setbacks shall be established around all active nest locations via stakes and high visibility fencing. The nesting bird setbacks shall be completely avoided during the duration of construction activities and the fencing must remain intact. The fencing may be removed when a qualified biologist confirms that the nest(s) is no longer occupied and all young have fledged.

3. If migratory nesting bird species (i.e., non-special-status birds) are observed within 500 feet of the construction area during the surveys, appropriate avoidance setbacks shall be established by a qualified biologist. The size and scale of nesting bird avoidance setbacks is dependent upon the species of nesting bird observed and the habitat that the nest occurs in. Avoidance setbacks shall be established around all active nest locations via stakes and high visibility fencing. The nesting bird setbacks shall be completely avoided during the duration of construction activities and the fencing must remain intact. The qualified biologist shall also determine an appropriate monitoring plan and will decide if construction monitoring is necessary during the duration of construction activities. Again, monitoring requirements are dependent upon the species of nesting bird observed, the habitat the nests are contained in, and the number of nests observed. The setback fencing may be removed when a qualified biologist confirms that the nest(s) is no longer occupied and all fledglings have left.
4. If impacts (i.e., take) to special-status or migratory nesting bird species are unavoidable, consultation with USFWS and/or CDFG shall be initiated. Through consultation, an appropriate and acceptable course of action shall be established.

The following mitigation measures recommended for Alternatives A and B only should be implemented to avoid or minimize project-related adverse effects to the desert tortoise (*Gopherus agassizii*):

5. The Tribe shall designate a “biological representative” (BR) for the proposed project. The BR will administer and manage the Tribe’s compliance with the conservation measures and any other required terms and/or conditions resulting from Section 7 consultation with USFWS regarding desert tortoise. The Tribe shall provide USFWS with the name(s) and qualifications of the chosen BR(s) for review/approval.
6. Within one day prior to the anticipated date of installation of an exclusion fence (USFWS 2005; **Appendix T** of the Final EIS/TEIR), a USFWS-approved biological monitor shall conduct a preconstruction survey to ensure no Mojave desert tortoise or their sign are detected. Any potential burrow sites that are confirmed to be unoccupied and are within the construction footprint shall be collapsed or otherwise blocked to prevent occupancy where the Mojave desert tortoise would be at risk. Should Mojave desert tortoise be detected, the USFWS-approved biological monitor shall halt the anticipated installation of the exclusion fencing in that area until the tortoise exits the project site on its own accord. The USFWS-approved biological monitor will notify the BR immediately. The BR will contact the USFWS within 24 hours to report the findings and request guidance in the event that the Mojave desert tortoise does not exit the project site.

7. If no Mojave desert tortoise or its sign is detected during the preconstruction survey, USFWS-approved desert tortoise exclusionary fencing (USFWS 2005; **Appendix T**of the Final EIS/TEIR) shall be installed around the perimeter of the entire project site prior to the onset of construction activities. The USFWS-authorized biological monitor shall supervise installation of the exclusionary fencing in order to ensure proper installation and adequacy. The exclusionary fencing must remain intact and must surround the entire project site until all construction activities are completed.
8. After installation of the exclusionary fence and prior to the onset of construction activities, the USFWS-approved biological monitor shall conduct a preconstruction desert tortoise clearance survey within the project site. This survey shall be conducted in accordance with the 1992 USFWS protocol (**Appendix T**), in order to ensure that there are no Mojave desert tortoise and/or occupied burrows within the project site.
9. The BR or another USFWS authorized biological monitor shall be present at least once a week to ensure the integrity of the exclusionary fencing is maintained.
10. The BR or the USFWS-approved biological monitor shall remain on-call throughout construction in the event that a Mojave desert tortoise wanders into the construction site. In the unlikely event that any Mojave desert tortoises are encountered on-site during construction activities, the occurrence(s) shall be reported to the construction supervisor and the BR and construction activities shall seize immediately. The BR will contact the USFWS within 24 hours of the sighting. Construction activities will not commence until authorized by the USFWS or until the Mojave desert tortoise exits the project site on its own accord.
11. A Raven Management Plan shall be prepared to minimize attracting common ravens during construction activities, in accordance with Boarman's (2002) *Reducing Predation by Common Ravens on Desert Tortoises in the Mojave and Colorado Deserts*. The BR shall be responsible for implementing the management practices identified within the Raven Management Plan. The Raven Management Plan shall include, at minimum:
    a. A Mojave desert tortoise awareness training shall be presented to all construction personnel prior to commencement of construction activities. The USFWS-approved biological monitor shall present the Mojave desert tortoise awareness training and provide educational pamphlets to the crew members. The Mojave desert tortoise awareness briefing shall include, but is not be limited to, the following information:
        - Construction personnel shall be informed about the federally threatened status of the Mojave desert tortoise, shall be shown what this species and its eggs look like, and shall be educated about the protection measures designed to reduce potential project-related effects on this species. Construction personnel shall be provided with instruction regarding what to do if they encounter a Mojave desert tortoise and/or its eggs within the project site during construction activities.
        - Construction personnel shall be advised that handling, harming, or harassing a Mojave desert tortoise is illegal and is a violation of the FESA. Construction personnel shall be advised that penalties of up to $25,000 and six months imprisonment are the consequences for unauthorized handling of a listed species. Construction personnel shall sign a document, which indicates that they have received the Mojave desert tortoise briefing and that they understand its contents.

- Measures to minimize attracting ravens shall be discussed to crew members to be followed during all construction activities associated with the project site.

b. Trash bins and cans shall be covered so that trash within the containers shall not be accessible to ravens. Trash shall be picked up and removed daily from the construction site.

12. Post-construction reporting shall be provided to the USFWS within 90 days of completion of construction

The following mitigation measures recommended for Alternatives C and D only shall be implemented to avoid or minimize project-related impacts to potentially jurisdictional wetlands, other waters of the U.S., or the arroyo toad and its aquatic habitats:

13. The project design shall be reconfigured in order to completely avoid any potentially jurisdictional wetland or other waters of the U.S.

14. If potentially jurisdictional wetlands or other waters of the U.S. cannot be avoided, the following mitigation measures shall be implemented:

    - A formal wetland delineation shall be conducted within the project site and submitted to the USACE for verification of jurisdictional wetlands and/or other waters of the U.S.
    - Prior to the onset of construction activities, the Tribe shall obtain the following permits:
        - The appropriate Section 404 CWA Nationwide Permit from the USACE, which permits activities that involve the discharge of dredged and/or fill materials into jurisdictional wetlands and/or other waters of the U.S. Typical 404-permit mitigation occurs at a ratio of 1:1 acres created versus impacted and 2:1 acres restored versus impacted, though individual permit conditions may vary; and
        - Section 401 CWA water quality certification through the Regional Water Quality Control Board.
    - If permits are required, a detailed mitigation and monitoring plan shall be designed for the proposed project that includes all the necessary details regarding the size, location, and whether or not aquatic features shall be created or restored. The mitigation and monitoring plan shall include specific information regarding on-site aquatic feature preservation, monitoring stipulations, reporting requirements, responsibilities of the Applicant, and performance success criteria. The mitigation and monitoring plan shall meet the specified requirements of and be written in accordance with the 401, 404, and 1600 permits, if applicable.

The following mitigation measure shall be implemented for Alternatives C and D to minimize project-related adverse effects to Stephen's kangaroo rat (*Dipodomys stephensi*), should it occur on-site:

15. Prior to the onset of construction activities, the Tribe shall complete Section 7 Consultation with the USFWS regarding the Stephen's kangaroo rat. If the USFWS determines that the

Stephen's kangaroo rat may occur on-site, determinant-level surveys shall be conducted and appropriate mitigation and avoidance measures recommended by the USFWS shall be implemented prior to and during construction and operation activities.

5.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

The following regulatory requirements and recommended BMPs and mitigation measures are applicable to Alternatives A through D and would avoid, minimize, or mitigate adverse effects to cultural and paleontological resources:

REGULATORY REQUIREMENTS

Any inadvertent discovery of archaeological resources shall be subject to Section 106 of the National Historic Preservation Act as amended (36 CFR 800), the Native American Graves Protection and Repatriation Act (NAGPRA)(25 USC 3001 *et seq*.), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm). Specifically, procedures for post review discoveries without prior planning pursuant to 36 CFR 800.13 shall be followed.

MITIGATION MEASURES

Alternatives A, B, C, and D

The purpose of the following mitigation measures is to minimize the potential adverse effect of construction activities to previously unknown archaeological resources in the case of inadvertent discovery:

1. All work within 50 feet of the potential archaeological find shall be halted until the BIA archaeologist or other professional archaeologist, or paleontologist if the find is of a paleontological nature, who meets Secretary of the Interior's qualifications, can assess the significance of the find.
2. If any archaeological find is determined to be significant by the archaeologist, or paleontologist as appropriate, then representatives of the Tribe shall meet with SHPO to determine the appropriate course of action, including the development of a Treatment Plan, if necessary.
3. All significant cultural or paleontological materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional archaeologist, or paleontologist, according to current professional standards.
4. If human remains are discovered during ground-disturbing activities on Tribal lands, pursuant to NAGPRA, the Tribal Official and BIA representative shall be contacted immediately. No further disturbance shall occur until the Tribal Official and BIA representative have made the necessary findings as to the origin and disposition. If the remains are determined to be of Native American origin, the tribal representative shall notify a Most Likely Descendant (MLD). The MLD is responsible for recommending the appropriate disposition of the remains and any grave goods.

5.6 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

The following provisions of the MSA are applicable to Alternatives A and B, and would avoid, minimize, or mitigate adverse socioeconomic effects:

1. In accordance with Section 5(A) of MSA, the Tribe agrees to pay the City amounts equal to the service, development, and impact fees which, if the parcels were not in trust status, would be charged by the City and other local agencies at the time of any and all project development(s) on trust lands (including payments to the City and the Barstow Fire Protection District). The Tribe shall also make payments to the Barstow Unified School District equal to the service, development, and impact fees which the District would receive if the parcels were not taken into trust.
2. In accordance with Section 10 of the MSA, subject to tribal employment preferences, the Tribe shall work in good faith with the City to employ qualified City residents at the Tribe's resort facilities to the extent permitted by applicable law. The Tribe shall offer training programs to assist City residents in becoming qualified for positions at the Resort to the extent permitted by applicable law.
3. In accordance with Section 12 of the MSA, the Tribe shall, upon the City's approval of the Tribe's construction plans and the City's completion of all building plan checks, make a one-time payment to the City of $40,000 for the establishment of a Problem Gambling Fund. Thereafter, the Tribe shall make annual contributions to the City in the amount of $40,000 to help fund local problem gaming diversion/assistance/counseling programs.
4. In accordance with Section 13 of MSA, the Tribe shall compensate the City by making gaming revenue payments of 4.3 percent of "Net Win" on Class II and Class III games of chance, as identified in IGRA.

5.7 TRANSPORTATION/CIRCULATION

The following provisions are identified in the Tribe's MSA with the City and are applicable to the development of Alternatives A and B.

- In accordance with Section 6 of the MSA, the Tribe has agreed to pay all required traffic mitigation fees consistent with the City's fee programs and ordinances and pay for all road improvements that are reasonable and necessary.
- The Tribe has also agreed that if an increase in traffic is caused by the Tribe's undertaking of other development projects on Trust Lands and additional road improvements or expansions are required, the Tribe shall grant suitable rights-of-way to the City in order to accommodate the necessary road improvements or expansions and make the necessary improvements.

MITIGATION MEASURES

The following mitigation measures are recommended for Alternatives A and B and should be implemented in the opening year to reduce potential adverse effects to the area transportation and circulation network:

Lenwood Road/Project Access Intersection:
Signalize intersection when signal warrants are met. Signal timing at the driveway shall be developed to minimize southbound left-turn queuing into the site.

- Reconfigure lane geometry as follows:

    1. Northbound: one dedicated right-turn lane, and one thru-land.
    2. Southbound: two dedicated left-turn lanes, one thru-lane. Southbound left-turn pockets shall be sized appropriately to accommodate peak demand to the site.
    3. Westbound: one dedicated left-turn lane, and two dedicated right-turn lanes.

Implementation of the above mitigation measure would result in an acceptable level of service at Lenwood Road/Project Access intersection. The above mitigation would require the approval of an encroachment permit by the City.

The above mitigation measure is recommended for Alternatives A and B in the cumulative year 2035 to reduce potential adverse effects to the area transportation and circulation network.

The Tribe would provide a fair share contribution to the implementation the following mitigation measures, which are recommended for Alternatives A and B in the cumulative year 2035 to reduce potential adverse effects to queuing on the I-15 southbound/northbound ramps at Lenwood Road and I-15 southbound/northbound ramps at Outlet Center Drive:

- Require all casino/hotel employees driving northbound on I-15 to utilize the Outlet Center Drive interchange.
- Require that casino/hotel literature list the Outlet Center Drive interchange as the main access to the casino/hotel.
- Require the traffic control personnel direct the majority of traffic to the Outlet Center Drive interchange for special events.
- Provide signs on NB I-15 south of the Outlet Center Drive interchange directing casino/hotel traffic to use the Outlet Center Drive interchange.
- Signalize the two ramps at the Outlet Center Drive interchange. This will improve interchange operation.
- The Tribe would provide a fair share contribution to future improvements to the I-15 NB off-ramp at Lenwood Road.

5.8 LAND USE

With the incorporation of the provisions outlined within the project description, implementation of Alternatives A, B, C, and D would result in minimal direct, indirect, and cumulatively considerable adverse effects. No mitigation is warranted.

5.9 PUBLIC SERVICES

The following measures are conditions of the MSA between the Tribe and the City and are applicable to Alternatives A and B.

1. In accordance with Section 8 of MSA, the Tribe would obtain their potable supply from Golden State Water Company.
2. In accordance with Section 7 of the MSA, the Tribe shall connect to the City's existing sewer collection system. The Tribe shall pay sewer connection fees and monthly sewer service charges, obtain required easements for sewer infrastructure if needed, construct to City sewer infrastructure standards, and pay all costs of constructing sewer infrastructure (even if located outside of the Trust Lands until sewer service is completed and inspected.
3. In accordance with Section 9 of the MSA, the Tribe shall utilize the City's contracted solid waste disposal company for all solid waste and recycled materials generated and pay all associated fees for these services.
4. In accordance with Section 5(B) of the MSA, if the City determines that it is necessary to contract outside of the City for approvals or inspections related to the proposed development, the Tribe would be required to pay the City on a monthly basis for the actual costs of the subcontracted services. These payments are not to be a condition of the commencement of the work and shall be made within 30 days of billing.
5. In accordance with Section 4 of the MSA, the City agrees to provide police services including but not limited to 24-hour patrol, response to emergency 911 calls, and general investigation for major crimes. The police department would have the authority to enforce all non-gaming State criminal laws on the proposed trust lands pursuant to Public Law 280 and Section 4 of the MSA. Additionally, the Tribe would employ security personnel and provide surveillance throughout the proposed facilities. Security personnel would work cooperatively with the City Police Department.
6. In accordance with Section 4(A) of the MSA, the Tribe shall utilize its best efforts to reach a contract directly with San Bernardino County for prosecutorial and defense services (i.e., District Attorney/Public Defender), and costs for such services shall be paid by the Tribe directly to the County. If the Tribe is unable to reach terms with the County for prosecution and defense services, then the Parties shall conduct further negotiations regarding the provision of such services to the Tribe.
7. In accordance with Section 4(B)(1) of the MSA, the Tribe would compensate the City for the purchase of a fully equipped Emergency Medical Services Response Vehicle which shall be housed at Station 363 located at 2600 West Main Street, Barstow, CA for the first two years of resort operations.
8. In accordance with Section 4(B)(2) of the MSA, to respond more effectively to high-rise emergencies at any structure on trust lands between one and four stories, the Barstow Fire Protection District has agreed to relocate its ladder fire truck from Station 361 located at 861 Barstow Road, Barstow, CA to Station 363 located at 2600 West Main Street, Barstow, CA for the first two years of resort operation.

9. As stated in Section 4(B)(3) of the MSA, the Barstow Fire Protection District and the City have advised that a ladder truck is no typically used to fight fires on buildings more than four stories in height and that buildings over four stories in height require entry by Fire Department personnel and personal action at the burning site. If a structure exceeding four stories in height is constructed by the Tribe on trust lands, the Tribe shall pay one half of the actual costs of training fire personnel.
10. In Section 4(C) of the MSA, within the first two years of resort operation the Tribe when requested by the City, shall dedicate or arrange for the dedication of two-acres of non-federal land near the project site owned or controlled by the Tribe or Barwest, LLC for fire or police station use. This dedicated land will be used by the City to construct new fire and police stations when, and if, deemed necessary by the City in its sole discretion.

The following measures apply to Alternatives C and D:

11. The Tribe shall either develop its own deputized Tribal Police Department, contract with a nearby professional police department for services, or enter into an agreement with San Diego County that will specify fair and appropriate compensation for the provision of law enforcement services to serve the proposed developments relative to the anticipated increase in demand for such services.
12. Prior to operation of Alternatives C and D, a technical report including a critical incident tasking/staffing analysis shall be conducted by a qualified fire expert or fire consultant organization mutually acceptable to the Tribe and San Diego County. The report shall evaluate building construction, occupant load, access, water supply, defensible space, built in fire protection, exiting, emergency medical needs including service and impacts, fire suppression, apparatus, personnel, training, travel time, aid agreements, and outside contracts. The Tribe shall make a good faith effort to enter into an agreement with San Diego County that will specify fair and appropriate compensation for the provision of fire protection services. Recommendations of the technical report shall be incorporated into the project design and used as the basis for negotiating the appropriate level of compensation to County.

BMPs

The following BMPs apply to Alternatives A through D to minimize the potential for fire hazards during construction activities.

1. Staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation and other materials that could serve as fuel for combustion. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.
2. Any construction equipment that normally includes a spark arrester shall be equipped with an arrestor in good working order.

5.10 NOISE

BMPs

The following BMPs are recommend for Alternatives A through D to minimize adverse noise effects from construction activities and operation of the project alternatives:

1. Engine-powered construction equipment shall be fitted with adequate mufflers and enclosures as supplied by the manufacturer, maintained in good condition.
2. Potential noise impacts from loading dock operations will be mitigated by requiring that loading dock use be limited to daytime hours (7 AM to 7 PM).
3. All powered equipment will comply with applicable local, State, and Federal regulations, and all such equipment shall be fitted with adequate mufflers according to the manufacturer's specifications to minimize construction noise effects.
4. HVAC equipment shall be shielded to reduce noise.
5. To the extent feasible, pile driving and other construction activities that have the potential to substantially increase ambient nighttime noise levels over existing conditions, shall not occur prior to 9:00 AM or after 5:00 PM.

5.11 HAZARDOUS MATERIALS

REGULATORY REQUIREMENTS

As discussed under **Section 5.2**, a SWPPP would be developed for the selected alternative, in accordance with the NPDES permitting process under the CWA. BMPs reducing potential adverse effects from the use of hazardous materials would also be incorporated into the SWPPP developed for the selected alternative.

SWPPP BMPs

The following BMPs are recommended for Alternatives A through D to minimize or eliminate potential contamination to environmental resources (such as soil, surface waters, and groundwater) from the use and storage of hazardous materials during construction activities. The BMPs to be included within the site-specific SWPPP shall include, but not be limited to, the following:

1. To reduce the potential for accidental release, fuel, oil, and hydraulic fluids shall be transferred directly from a service truck to construction equipment and shall not be stored on site.
2. Catch-pans shall be placed under equipment to catch potential spills during servicing.
3. Refueling shall be conducted only with approved pumps, hoses, and nozzles.
4. All disconnected hoses shall be placed in containers to collect residual fuel from the hose.
5. Vehicle engines shall be shut down during refueling.
6. No smoking, open flames, or welding shall be allowed in refueling or service areas.
7. Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill.

8. Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents.
9. Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, state, and federal regulations.
10. All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance, refueling, and storage areas shall be inspected monthly.
11. Results of inspections shall be recorded in a logbook that shall be maintained on site.
12. The amount of hazardous materials used in project construction and operation shall be kept at the lowest volumes needed.
13. The least toxic material capable of achieving the intended result shall be used to the extent practicable.

MITIGATION MEASURES

The following mitigation measures are recommended for Alternatives A through D and should be implemented to reduce potential adverse effects from hazardous waste management activities:

14. In the event that contaminated soil and/or groundwater are encountered during construction related earth-moving activities, all work shall be halted until a professional hazardous materials specialist or other qualified individual assesses the extent of contamination. If contamination is determined to be hazardous, representatives of the Tribe shall consult with the U.S. Environmental Protection Agency to determine the appropriate course of action, including development of a Sampling and Remediation Plan if necessary.
15. A hazardous materials and hazardous waste minimization program shall be developed, implemented, and reviewed annually by the Tribe to determine if additional opportunities for hazardous materials and hazardous waste minimization are feasible, for both project construction and operation.
16. Use of pesticides and toxic chemicals shall be minimized to the greatest extent feasible in landscaping; or less toxic alternatives shall be used.

5.12 AESTHETICS

BMPS

The following BMPs are recommended for Alternatives A through D and will reduce the impact of facility lighting on the surrounding environment to a minimal level:

1. Placement of floodlights on buildings shall be designed so as not to cast light or glare offsite.
2. Shielding, such as with a horizontal shroud, shall be used for all outdoor lighting so as to ensure it is downcast.
3. Timers shall be utilized so as to limit lighting to necessary times.

CHAPTER 6.0

CONSULTATION AND COORDINATION/ LIST OF PREPARERS

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6.1 LEAD AGENCY

Bureau of Indian Affairs, Pacific Region

John Rydzik
Larry Blevins
Patrick O'Mallan
Dan Hall

6.2 COOPERATING AGENCIES

Los Coyotes Band of Cahuilla and Cupeño Indians

Francine Kupsch, Chairperson

National Indian Gaming Commission

Bradley Mehaffy, NEPA Compliance Officer

City of Barstow

Ron Rector, Economic Development/Redevelopment Manager
Brent Morrow, Community Development Director
Mike Massimini, Associate Planner
James H. Mitsch, Contract City Engineer

Environmental Protection Agency, Region IX

Karen Vitulano, Environmental Review Office

6.3 ENVIRONMENTAL CONSULTANTS

Analytical Environmental Services

Principal:	David Zweig
Project Manager:	Ryan Lee
Deputy Project Manager:	Bibiana Alvarez
Technical Staff:	Anna Elzeftawy

Ashley Wells
Dana Hirschberg
Damon Haydu
David Sawyer
Erin Quinn
Glenn Mayfield
Kristie Haydu
LaTisha Burnaugh
Mike Taggart
Melinda McCrary
Peter Bontadelli
Ona Alimas
Trenton Wilson

Linscott Law & Greenspan (LLG) Engineers, Transportation Engineering

John Boarman, PE
Raul Armenta, Transportation Engineer

Questa Engineering, Grading and Drainage

Carl Nelson

HydroScience Engineers, Water and Wastewater Feasibility

Jacky Bowen

6.4 AGENCIES AND PERSONS CONSULTED

City of Barstow

Solid Waste Department

Belinda Barbour

Fire Department

Salvatore Carrao, Division Chief of Operations

Police Department

Mike Downey, Lieutenant Commander in Charge of Patrol Operations
Rich Harpole, Lieutenant

Mojave Desert Air Quality Management District

Chris Collins, Supervisor of Compliance

San Diego County Air Pollution Control District

Scott Underhill, Chief of Compliance

North Coast Unified Air Quality Management District

Jason Davis, Interim Air Pollution Control Officer

Bureau of Land Management

Charles Sullivan, Natural Resource Specialist

California Department of Forestry and Fire Protection

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ACRONYMS

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ac-ft/yr	acre-feet per year
ADT	Average Daily Traffic
AEP	Association of Environmental Professionals
AES	Analytical Environmental Services
af	acre-feet
afa	acre-feet per annum
amsl	Above Mean Sea Level
APE	area of potential effects
APN	Assessor's Parcel Number
ASTM	American Society for Testing and Materials
BFPD	Barstow Fire Protection District
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMPs	best management practices
BOD	Biochemical Oxygen Demand
BP	before present
BPD	Barstow Police Department
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standard
CalEPA	California Environmental Protection Agency
CA FID UST	Facility Inventory Database
Caltrans	California Department of Transportation
CAPs	Criteria air pollutants
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDOC	California Department of Conservation
CEQ	Council of Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response
CERCLIS	Comprehensive Environmental Response, Compensation & Liability Information System
CFR	Code of Federal Regulations
CHMIRS	California Hazardous Material Incident Report System
CHP	California Highway Patrol
CIWMB	California Integrated Waste Management Board
CMP	Congestion management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CORRACTS	Corrective Action Report System

CRLF	California Red Legged Frog
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibels
DEIS	Draft Environmental Impact Statement
DPM	diesel particulate matter
EDR	Environmental Data Resources, Inc.
EDU	equivalent dwelling units
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
ERNS	Emergency Response Notification System
ERTC	Eagle Rock Training Center
ESA	Phase I Environmental Site Assessments
FBI	Federal Bureau of Investigation
FCIR	Farmland Conversion Impact Rating
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FICON	Federal Interagency Commission on Noise
FID	Facilities Index Database
FINDS	Facility Index System/Facility Registry System
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FPA	Free Production Allowance
FPPA	Farmland Protection Policy Act
FPT	Fluted Point Tradition
FTE	full-time equivalent employees
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GHG	green house gasses
GPAs	General Plan Amendments
gpd	gallons per day
gpm	gallons per minute
GSWC	Golden State Water Company
HAP	hazardous air pollutant
HAZNET	Hazardous Waste Information System
HIST	Historical Underground Storage Tank
HIST LF	Inactive Solid Waste Facilities
HIST UST	Hazardous Substance Storage Container Database
HMIRS	Hazardous Materials Information Reporting System
HRA	Health Risk Assessment
Hz	hertz
I & I	Infiltration and Inflow (IRWP replacement program for sanitary main lines and manholes)
IBC	International Building Code
IGRA	Indian Gaming Regulatory Act
IRA	Indian Reorganization Act
ISA	International Society of Arboriculture

ITE	Institute of Transportation Engineers
L_{dn}	Day-night average sound level
L_{eq}	Energy-averaged sound level
L_{max}	Maximum noise level
L_{50}	The A-weighted noise levels that are exceeded 50% of the time during the measurement period.
LID	Low Impact Development
LOS	Level of Service
LRWQCB	Lahontan Regional Water Quality Control Board
LTS	Less Than Significant
LSP	Lenwood Specific Plan
LUST	leaking underground storage tank
LU	Land Use (General Plan Element)
MBR	Membrane Bioreactor
MBTA	Migratory Bird Treaty Act
MCBHS	Madera County Behavioral Health Services
MCL	Maximum Containment Levels
MCLG	Maximum Containment Level Goals
MCTC	Madera County Transportation Commission
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
mgd	million gallons per day
mg/L	milligrams per liter
mL	milliliters
MMEP	Mitigation Monitoring and Enforcement plan
MMI	Modified Mercalli Intensity
MOU	Memorandum of Understanding
mph	miles per hour
MSA	Municipal Services Agreement
MUTCD	Manual of Uniform Traffic Control Devices
MWA	Mojave Water Agency
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NAAQS	National ambient air quality standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NGISC	National Gambling Impact Study Commission
NH_4	Ammonium
NI	No Impact
NIGC	National Indian Gaming Commission
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOI	Notice of Intent
NOP	Notice of Preparation
NORC	National Opinion Research Center
NO_2	Nitrogen Dioxide
NO_3	Nitrate
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List

NRCS	Natural Resource Conservation Service
NRHP	Natural register of historical places
O_3	Ozone
OHP	Office of Historic Preservation
OHV	Off-Highway Vehicle
OPR	Office of Planning and Research
OS	Open Space (General Plan Element)
OSHA	Occupational Health and Safety Administration
Pb	lead
PCD	Planned Commercial Development
PM	Particulate Matter
PM_{10}	Particulate Matter (10 microns)
$PM_{2.5}$	Particulate Matter (2.5 microns)
PPM	Parts per million
RCRA	Resource Conservation and Recovery Act
RCRA-G	Generators and Violations List
RCRA-LQG	large quantity generators
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RCRATSD	RCRA Treatment, Storage, or Disposal List
REC	Recognized Environmental Conditions
RMS	root mean square
ROD	Record of Decision
ROG	Reactive organic gases
RPO	Resource Protection Ordinance
RSTF	Revenue Sharing Trust Fund
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S	Significant
SANDAG	San Diego Area Association of Governments
SANBAG	San Bernardino Area Association of Governments
SB	Southbound
SBIC	San Bernardino Archaeological Information Center
SCE	Southern California Edison Company
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Policy Control District
SDAQS	San Diego Air Quality Strategy
SDCSD	San Diego County Sheriff's Department
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sf	square feet
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TDS	Total Dissolved Solids
TEIR	Tribal Environmental Impact Report
TIA	Traffic Impact Analysis
TMDL	Total Maximum Daily Load
TRIS	Toxic Release Inventory Database
TSS	total suspended solids
~~UBC~~	~~Uniform Building Code~~
URBEMIS	Urban Emissions Model
UCMP	University of California Museum of Paleontology
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UV	ultraviolet light
VCP	Voluntary Cleanup Program
VID	Vista Irrigation District
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WDS	Waste Discharge System
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Analytical Environmental Services (AES). ~~2009a~~2012. *Los Coyotes Casino Casinos Project Cultural Resources Study-Barstow Site.* Analytical Environmental Services. Sacramento, CA.

AES. 2010~~09b~~. *Los Coyotes Casino Casinos Project Cultural Resources Study-Los Coyotes Reservation Site.* Analytical Environmental Services. Sacramento, CA.

Association of Environmental Professionals (AEP). 2007. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.* Available online at: http://www.csac.counties.org/images/public/Advocacy/ag_natres/AEP_Global_Climate_ Change_June_29_Final%5B1%5D.pdf. Accessed June 2007.

Analysis Group, 2007. *The Potential Economic and Fiscal Impacts of the Proposed Barstow Casinos.* May, 2007.

Anderson, Marc, P.E. 1998. Preliminary Engineering Report, Los Coyotes Band of Indians, Domestic Water System Rehabilitation – Phase I, Lower Community Water System. June 1998.

Ballog, A.P. and W.R. Moyle. 1980. Water Resources and Geology of the Los Coyotes Indian Reservation and Vicinity, San Diego County, California, U.S. Geological Survey Open File Report 80-960.

Barbour, Belinda. 2006. Solid Waste Department, City of Barstow. Email communication June 15, 2006.

Barbour, Belinda. 2009. Solid Waste Department, City of Barstow. Email communication February 26, 2009.

Barstow Fire Protection District (BFPD), 2006. District Boundaries Map. Available online at http://www.barstowfire.com/Large2006%20Boundries.htm Accessed June 2010.

Bay Area Air Quality Management District (BAAQMD), 2006. Source Inventory of Bay Area Greenhouse Gas Emissions, San Francisco CA, 2006.

Bean, Lowell J. 1978. Cahilla. In *California*, edited by Robert F. Heizer, pp. 575-587. Handbook of North American Indians, vol. 8, William C. Sturtevart, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J. and Charles Smith. 1978. Cupeno. In *California*, edited by Robert F. Heizer, pp. 588-591. Handbook of North American Indians, vol. 8, William C. Sturtevart, general editor. Smithsonian Institution, Washington, D.C.

Beck, J. L. 1971 A chipped stone crescent from Tracy Lake, California. Los Angeles: The Masterkey 45(4): 154 -156.

Bedwell, S.F., 1973. Fort Rock Basin: Prehistory and Environment. University of Oregon Books, Eugene, Oregon.

Benadict, Ruth. 1924. A Brief Sketch of Serrano Culture. *American Anthropologist* 26(3):366-392.

Benadict, Ruth. 1926. Serrano Tales. *Journal of American Folk-Lore* 39(151):1-17.

Beranek, L.L. 1998. *Noise and Vibration Control*. Institute of Noise Control Engineering. McGraw Hill.

Bergman, Walls & Associates. 2009. Project Areas Tabulation, Alternative A. 20 Apr 2009

Bergman, Walls & Associates, 2010. Project Areas Tabulation Alternative B. 2010.

Bolt, Bruce A. 1988. *Earthquakes*. W. H. Freeman and Company, New York. 1988.

Bookman-Edmonston Engineering, Inc. (BEE). 1994. *Regional Water Management Plan.* Apple Valley, California: Mojave Water Agency.

Brown Buntin Associates, Inc. (BBA). 2004. *Environmental Noise Analysis, Graton Rancheria Casino, Sonoma County, California*. BBA Project No. 04-244. December 13, 2004.

Bureau of Indian Affairs (BIA). 2005. *American Indian Population and Labor Force Report*. U.S. Department of Interior, Bureau of Indian Affairs, Office of Indian Services. Available online at: http://www.doi.gov/bia/labor.html. Accessed January 2009.

Bureau of Land Management (BLM). 2006a. West Mojave Habitat Conservation Plan Species Accounts: Desert Tortoise. Available online at http://www.blm.gov/ca/cdd/wemo_species_rept_am.html. Accessed April 26, 2006

BLM. 2006b. Stoddard Valley Off-Highway Vehicle Area Information. Available online at: http://www.blm.gov/ca/barstow/stoddard.html. Accessed November 29, 2006.

BLM. 2007. Personal Communication with Charles Sullivan, Natural Resource Specialist. January 8, 2007.

Burns, Dianne, 2009. Chief of Police. Email correspondence on February 27, 2009.

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA and Climate Change-Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* Available online at: http://www.capcoa.org. Accessed, January 2008.

CARB. 2005. *Ambient Air Quality Standards for Particulate Matter.* Available online at: http://www.arb.ca.gov/research/aaqs/pm/pm.htm. Accessed February 2009. Updated June 14, 2005.

CARB. 2006c. CARB Facility Search Engine. Available online at http://www.arb.ca.gov/ei/ disclaim.htm. Accessed May 2006.

CARB, 2007a. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*, October 2007.

CARB, 2007b. Climate Change Scoping Plan, 2007. Available at http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Viewed on January 2008.

CARB, 2007c. The Greenhouse Effect and California. Available online at: http://www.arb.ca.gov/cc/facts/facts.htm. View on February 4, 2009.

CARB, 2008. Climate Change Scoping Plan 2008. Available online at http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm. Viewed on January 14, 2009.

CARB. 2009a. *BarstowArea Attainment Status.* Available online at: http://www.mdaqmd.ca.gov/rules_plans/documents/CEQAGuidelines.pdf. Viewed on January 14, 2009.

CARB. 2009b. *San DiegoArea Attainment Status.* Available online at: http://www.sdapcd.org/info/facts/attain.pdf. Viewed on January 14, 2009.

CARB, 2009c. iADAM Air Quality Data Statistics, 1963 - 2009. Available online at http://www.arb.ca.gov/adam/topfour/topfour1.php Accessed May 2010

CARB, 2009d. Almanac Emissions Projection Data Published 2009. Available online at http://www.arb.ca.gov/app/emsinv/emssumcat.php Accessed May 2010.

California Climate Action Registry, 2009. General Reporting Protocol Version 3.1, 2009. Available online at: http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html. Accessed December, 2009.

California Department of Conservation (CDOC). 2006. Williamson Act Program. Division of Land Resource Protection. Available online at http://www.consrv.ca.gov/DLRP/ lca/index.htm. Accessed July 24, 2006

California Department of Finance (DOF). 2010. *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2009 and 2010.* Sacramento, California, May,

2010. Available online at http://www.dof.ca.gov/research/demographic/reports/estimates/e-1_2006-07/ .

California Department of Fish and Game (CDFG). 2003. RareFind 3.0.5, California Natural Diversity Data Base. Wildlife and Habitat Data Analysis Branch, Sacramento, California.

CDFG. 2005. California Wildlife Habitat Relationship System, Database Version 8.1, 2005. Available online at http://www.dfg.ca.gov/whdab/html/cawildlife.html.

California Department of Housing and Community Development. 1996. *1996 Field Directory of the California Indian Community*. Department of Housing and Community Development, State of California, Sacramento.

California Department of Transportation (Caltrans). 2005. *2005 Traffic Volumes on California State Highways*. Available online at: http://traffic-counts.dot.ca.gov/2005all.htm.

Caltrans. 2007. *The California Scenic Highway System*. Available online at http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm/ Accessed April 10, 2007.

Caltrans, 2009a. Technical Noise Supplement. Available online at http://www.dot.ca.gov/hq/env/noise/index.htm Accessed March, 2010.

Caltrans, 2009b. *Traffic* Volumes on State Route 15. Available online at: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2006all/r012-15i.htm. Viewed on January 15, 2009.

California Department of Water Resources (DWR). 2003. *Middle Mojave River Valley Groundwater Basin.* California's Groundwater Bulletin 118.

DWR. 2004a. *North Coast Hydrologic Region: Big Lagoon Area Groundwater Basin.* California's Groundwater Bulletin 118.

DWR. 2004b. *Hydrologic Region South Coast: Warner Valley Groundwater Basin.* California's Groundwater Bulletin 118.

DWR. 2008. Groundwater Level Data. Available online at http://wdl.water.ca.gov/gw/. Accessed February 23, 2009.

California Native Plant Society. 2009. Inventory of Rare and Endangered Plants-.Sacramento, California. Available online at: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Last Accessed on February 11, 2009.

CMP, 2003. *Congestion Management Program for San Bernardino County, 2003 Update*. Prepared by San Bernardino Associated Governments. December 3, 2003. Available online at http://www.sanbag.ca.gov/planning/cmp/cmp_preface.pdf. Accessed March 29, 2007.

California Geological Survey (CGS). 2007. Alquist-Priolo Earthquake Fault Zones. Available online at http://www.consrv.ca.gov/CGS/rghm/ap/index.htm. Last updated January 29, 2007. Accessed March 28, 2007.

California Integrated Waste Management Board (CIWMB). 2007a. California Waste Stream Profiles. Available online at http://www.ciwmb.ca.gov/Profiles/Juris/. Accessed January 16, 2007.

CIWMB. 2007b. Reporting Indian Country Waste. California Integrated Waste Management Board (CIWMB). Available online at http://www.ciwmb.ca.gov/LGCentral/DRS/ Indian.htm. Accessed January 16, 2007

CIWMB. 2009. *Solid Waste Information System – Facility/Site Search*. Available online at: http://www.ciwmb.ca.gov/SWIS/Search.asp. Accessed February 2009

California Native Plant Society (CNPS). 2006a. Inventory of Rare and Endangered Plants of California, Version 7. Rodgers Peak quad and eight surrounding quads, California.

CNPS. 2006b. Inventory of Rare and Endangered Plants of California, Version 7. Hot Springs Mountain quad and eight surrounding quads, California.

Carrao, Salvatore, 2006. Division Chief of Operations Barstow Fire Department. Correspondence dated April 24, 2006.

Carrao, Salvatore, 2009. Division Chief of Operations Barstow Fire Department. Correspondence dated February 24, 2009.

Casino Market Assessment Update: Big Lagoon Rancheria, California, December 2001.

Climate Action Team (CAT), 2007. *Climate Action Team Proposed Early Actions to Mitigate Climate Change in California*, 2007.

City of Barstow. 1988. Lenwood Specific Plan. August 1988. Available online at: http://www. barstowca.org/Uploads/LenwoodSpecificPlan.pdf. Accessed March 28, 2007.

City of Barstow. 1997. City of Barstow General Plan. July 1997. Available online at: http://www. barstowca.org/Uploads/GeneralPlan.pdf. Accessed March 28, 2007.

City of Barstow, 2000. Zoning Map.

City of Barstow. 2006a. History. Available online at http://www.barstowca.org/AboutBarstow. Accessed April 2006.

City of Barstow. 2006c. Map of Land Use Designations for the Lenwood Specific Plan area. From Mike Massimini, City of Barstow Planning Department.

City of Barstow Fire Protection District (BFPD). 2007. Master Plan. Available online at http://www.barstowfire.com/BFPD%20MASTER%20PLAN.pdf. Accessed on February 26, 2009.

City of Barstow. 2008. Request for Statements of Qualifications for the Design-Build Project Delivery of Improvements at the Municipally Owned Wastewater Reclamation Facility. Available at http://www.barstowca.org/Uploads/RFP_RFQWRFDesignedBuild.pdf. Accessed on February 27, 2009.

City of Barstow, 2009. General Plan Land Use Policy Map. June 1997, revised March 2009. Available online at: http://www.barstowca.org/site/images/pdf/General_Plan_Map.pdf. Accessed June 2010.

City of Barstow. 2010. Current Development Packet. City of Barstow Planning Department – Michael Massimini, City Planner. Last updated August 1, 2009.

Congressional Budget Office (CBO), 2010. The Budget and Economic Outlook: Fiscal Years 2010 to 2020. January 2010. Available online at: http://www.cbo.gov/ftpdocs/108xx/doc10871/01-26-Outlook.pdf

Council of Economic Advisers, 2010. Economic Report of the President: Transmitted to Congress February 2010 together with the Annual Report of the Council of Economic Advisers. United States Government Printing Office. Washington: 2010. Page 75. Available online at: http://www.whitehouse.gov/sites/default/files/microsites/economic-report-president.pdf

Council on Environmental Quality (CEQ), 1997a. Considering Cumulative Effects Under the National Environmental Policy Act. Council on Environmental Quality (CEQ). January 1997.

Council on Environmental Quality (CEQ), 1997b. Environmental Justice Guidance Under the National Environmental Policy Act. Council on Environmental Quality (CEQ). December 10, 1997.

County of San Bernardino. 2006. Barstow Sanitary Landfill Expansion Project Draft Environmental Impact Report. Available at http://www.sbcounty.gov/landuseservices/Public%20Notices/Projects/Projects.htm. Accessed on February 27, 2009.

Collins, Chris. 2006. Supervisor of Compliance with the Mojave Desert Air Quality Management District. Telephone interview May 3, 2006.

Davis, E.L. and J. Richard Shutler, 1969. *Recent Discoveries of Fluted Points in California and Nevada*. Nevada State Museum Anthropological Papers 14. Miscellaneous Papers on Nevada Archaeology 1-8:155-177

Davis, E.1978. *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*. Natural History Museum of Los Angeles County, Science Series 29, Los Angeles.

Davis, Jason. 2006. Interim Air Pollution Control Officer with the North Coast Unified Air Quality Management District. Telephone interview May 3, 2006.

Downey, Mike. 2005. Lieutenant Commander in Charge of Patrol Operations. Telephone Interview August 2005.

Drucker, Phillip. 1937. Culture Element Distributions, V: Southern California. *University of California Anthropological Records* 1(1):1-52.

Ed-Data, 2010. *Education Data Partnership (Ed-Data) – Fiscal, Demographic, and Performance Data on California's K-12 Schools*. Available online at http://www.ed-data.k12.ca.us. Accessed May 19, 2010.

Employment Development Department (EDD), 2010. *LaborMarketInfo-Data Library*. Accessed on: May 19, 2010. Available online at: http://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/AreaSelection.asp?tableName=Labforce.

Environmental Data Resources (EDR). 2006a. Barstow Site, Barstow, CA. EDR Radius Map Report with Geocheck®, March 29, 2006.

EDR. 2006b. Los Coyotes Site, Ranchita, CA. EDR Radius Map Report with Geocheck®, April 4, 2006.

EDR, 2009a. Barstow Site, Barstow, CA. EDR Radius Map Report with Geocheck®, February 16, 2009.

EDR, 2009b. Los Coyotes Site, Warner Springs, CA. EDR Radius Map Report with Geocheck®, February 16, 2009.

Environmental Protection Agency (EPA), 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. April 1998.

EPA, 2006. 40 CFR § 93.153 (b)(1), *Conformity Thresholds*.

EPA, 2006. EPA Toxic Release Inventory. Available online at http://www.epa.gov/triexplorer. Accessed May 2006.

EPA 2010. National Ambient Air Quality Standards. Updated June 02, 2010. Available online at http://www.epa.gov/air/criteria.html Accessed June 2010.

Environmental Science Associates (ESA). 2004. Mojave Water Agency 2004 Regional Water Management Plan Draft Program Environmental Impact Report. September 2004.

Federal Bureau of Investigation (FBI). 2006. Crime in the United States 2005. Table 8 – Offenses Known to Law Enforcement. Release Date: September 2006. Available at: http://www.fbi.gov/ucr/05cius/. Accessed May 14, 2010.

Federal Emergency Management Agency (FEMA). 1982. Flood Insurance Rate Map (Humboldt County). Map Number 0600600300B. July 19, 1982. Available online at http://msc.fema. gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1. Accessed December 4, 2006.

FEMA. 2008. Flood Insurance Rate Map (San Bernardino County). Map Number 06071C4527H. August 28, 2008. Available online at http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=29370171&IFIT=1. Accessed February 23, 2009.

FEMA. 2006. Flood Insurance Rate Map (San Diego County). Map Number 06073C0625F. September 29, 2006. Available online at: http://msc.fema.gov/webapp/wcs/stores/servlet/ FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1. Accessed December 4, 2006.

Federal Highway Administration (FHWA). 2004. *Manual of Uniform Traffic Control Devices 2003 California Supplement.* May 20, 2004.

FHWA, 2006. Interim Guidance on Air Toxic Analysis in NEPA Documents. February 3, 2006. Available online at http://www.fhwa.dot.gov/ environment/airtoxic/020306guidmem.htm. Accessed February 7, 2007.

Federal Highway Administration, 2010. Highway Traffic Noise: Analysis and Abatement Guidance. Available online at: http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_ guidance/revguidance.pdf. Viewed on January 11, 2011.

Golden State Water Company (GSWC). 2005. 2005 Urban Water Management Plan – Barstow. Final Report December 2005. Prepared by CH2M Hill.

Grenda, Donn, 1993. Archaeological Treatment Plan for CA-RIV-2798/H, Lake Elsinore, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Gudde, Erwin G. 1990. *California Place Names: The Origin and Etymology of Current Geographical Names.* Fourth edition revised and enlarged by William Bright. University of California Press, Berkeley.

Guidelines for CMP Traffic Impact analysis Reports in San Bernardino County – 2005 update.

Harpole, Rich. 2006. Lieutenant with the Barstow Police Department. E-mail communication. April 26, 2006.

Harrington, M. R. and R. D. Simpson, 1948. An ancient site at Borax Lake, California. Los Angeles: Southwest Museum Pap16:1-126.

Hawks, D. and G. Ballmar. 1997. The Quino Checkerspot Butterfly *Euphydras editha quino*. Prepared November 1997. Unpublished report.

Heizer, Robert F. and Franklin Fenega. 1939. Archaeological Horizons in Central California. *American Anthropologist* 41(3):378-399.

Hickman, 1993. *The Jepson Manual*. Hickman, James C. (ed.). University of California Press, Berkeley, CA.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Resources Agency, California State Department of Fish and Game, Natural Heritage Division. October, 1986.

Hoover, M.B., H.E. Rensch, E.G. Rensch, and W.N. Abeloe. 1990. *Historic Spots in California*. Fourth edition, revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Houston, J.R. and A.W. Garcia. 1978. Type 16 Flood Insurance Study: Tsunami Predictions for the West Coast of the Continental United States: U.S. Army Engineer Waterways Experiment Station, Technical Report H-78-26.

Humboldt County. 2002. Humboldt County Wildland Fire Rating Map. Available online at: http://www.co.humboldt.ca.us/planning/maps/fire_plan/firerating.pdf. Accessed November 29, 2006.

Humboldt County. 2005. *Master Fire Protection Plan September 2005 Draft*. Viewed 9/22/2005. Available at: http://www.co.humboldt.ca.us/planning/fire_safe_council/fsc_default.asp

Humboldt County. 2006. Interactive Housing Inventory Mapping System. Available online at: http://www.co.humboldt.ca.us/planning/maps/landinvgis.asp. Accessed June 21, 2006.

HydroScience Engineers, Inc (HSe). 2006. Barstow Hotel and Casino Water and Wastewater Feasibility Study. Sacramento, CA. October 2006.

HSe. 2007. Barstow Casinos Water and Wastewater Feasibility Study (Draft). Sacramento, CA. February 2007.

JCP Geologists (JCP). 2001. Hazard Information – Expansive Soils. Available online at http://www.jcpreports.com/html/articles/expsoil.html/ Last updated 2001. Accessed April 11, 2007.

Captain Johnson. 2009. Captain of CDF Warner Springs Station. Telephone Interview on February 24, 2009.

Jones, Jason. 2006. CDF Firefighter Warner Springs Station. Telephone Interview with Jason Jones and Captain Johnson. September 22, 2006.

Justice, Noel D. 2002. *Stone Age Spear and Arrow Points of California and the Great Basin*. Indiana University Press.

Kroeber, Alfred L. 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C. Reprinted 1976 by Dover, New York.

Kunzman, 2007. *Barstow Casinos Project, Los Coyotes Reservation Alternative, Traffic Impact Analysis*. Kunzman Associates, February 15, 2007.

Lahontan Regional Water Quality Control Board (LRWQCB). 2002. *Watershed Management Initiative*

LRWQCB. 2005. *Water Quality Control Plan for the Lahontan Region: North and South Basins.* Lahontan Regional Water Quality Control Board. Amended July, 2005. Available online at: < http://www.swrcb.ca.gov/rwqcb6/water_issues/programs/basin_plan/references.shtml >

Land Title Survey maps for Barstow site.

Linscott, Law, & Greenspan (LL&G), 2010. *Los Coyotes Casino, Traffic Impact Analysis.* LL&G engineers, January 2010.

Live Oak Associates, Inc. 2001. Big Lagoon Rancheria Proposed Gaming Facility Biotic Analysis.

Los Coyotes Band of Indians Environmental Review Record. June 2004.

Maps of California Ozone (O_3) and Carbon Monoxide Nonattainment Areas, Los Coyotes, November, 1998.

Marc Anderson, Inc. 2004. Preliminary Water Management Plan, Los Coyotes Reservation. May 2004.

McGuire, Kelly R. 1990. *A Cultural Resources Inventory and Limited Evaluation of a Proposed Mojave Pipeline Corridor in California and Arizona.* Report on File, San Bernardino Archaeological Information Center, Redlands, California.

McGuire, Kelly R. and Leslie Glover, 1991. *A Cultural Resources Inventory of a Proposed Natural Gas Pipeline From Adelantro to Ward Valley, San Bernardino County, California*. Report on File, San Bernardino Archaeological Information Center, Redlands, California.

McGuire, Kelly R. and Leslie Anderson. 1998. *A Cultural Resources Inventory of a Proposed Natural Gas Pipeline From Adelantro to Ward Valley, San Bernardino County, California*. Report on File, San Bernardino Archaeological Information Center, Redlands, California.

Meighan, C. W. and C. V. Haynes, 1970. The Borax Lake site revisited. Science 167 (3922):1213-1221

Merrell Engineering Company. 2003. Phase I Environmental Investigation. August 2003.

Michigan Consultants, 2003. Casino Market Feasibility Study, Los Coyotes Band of Cahuilla Indians. September, 2003.

Michigan Consultants, 2006. Market and Economic Impact Analysis for Co-located Native American Casinos in the City of Barstow. June 2006 Draft.

Michigan Consultants, 2010. Los Coyotes Band of Cahuilla Indians. Construction costs, revenue, patrons, and employee estimates. June 2010.

Mohr, Niel, General Manager Allied Waste Ind. 2009. Personal Communication on February 23, 2009

Mojave Water Agency (MWA). 2004. 2004 Regional Water Management Plan. Volume I: Report.

Mojave Desert Air Quality Management District (MDAQMD) 2009. Federal Attainment Status. Available online at http://www.mdaqmd.ca.gov/ Accessed June 2010.

MWA, 2006. General Information. Available online at: http://www.mojavewater.org/. Accessed November 29, 2006.

MWA, 2009. Mojave Water Agency: About the Mojave Water Agency. Website available at: http://www.mojavewater.org/home/aboutContent.aspx. Accessed February 25, 2009.

Moorehead, Virgil. 2006. Tribal Chairperson Big Lagoon Rancheria. Telephone interview April 12, 2006.

Moratto, M. 1984. *California Archaeology*. Academic Press, San Francisco.

National Gambling Impact Study Commission (NGISC). 1999. Final Report. Available online at: http://govinfo.library.unt.edu/ngisc/. Site accessed February 7, 2009.

National Park Service (NPS), 1990. How to Apply the National Register Criteria for Evaluation. National Register Bulletin #15. U.S. Department of the Interior, Washington D.C.

National Research Council (NRC). 2000. Highway Capacity Manual Special Report 209, Transportation Research Board. Washington, D.C., 2000

Natural Resources Conservation Service (NRCS). 2006. Definitions. Available online at: http://www.nrcs.usda.gov/Technical/land/meta/m6175.html. Last updated November 15, 2006. Accessed November 21, 2006.

National Opinion Research Center (NORC). 1999. *Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission. April 1, 1999.* Available online at: http://cloud9.norc.uchicago.edu/dlib/ngis.htm. Accessed January 2009.

Office of the California Attorney General, 2007. Global Warming Mitigation Measures, 2007.

Office of Historic Preservation (OHP). 1976. California Inventory of Historic Resources. Department of Parks and Recreation, Sacramento.

OHP. 1988. *Five Views: An Ethnic Historic Site Survey for California*. State of California Department of Parks and Recreation, Sacramento.

OHP. 1990. *California Historical Landmarks*. State of California Department of Parks and Recreation, Sacramento.

OHP. 1992. *California Points of Historical Interest*. State of California Department of Parks and Recreation, Sacramento.

OHP. 2006a. Historic Properties Directory File for San Bernardino County. San Bernardino Archaeological Information Center, California Historical Resources Information System, San Bernardino County Museum, Redlands, California.

OHP. 2006b. Historic Properties Directory File for San Diego County. South Coastal Information Center, California Historical Resources Information System, Social Sciences Research Laboratory, San Diego, California.

Office of Planning and Research (OPR), 2007. *Climate Change and CEQA: Presenatation to the Climate Action Team*. Presented by Cynthia Bryant, Director, Governor's Office of Planning and Research (OPR). September 19, 2007. Accessed at: http://climatechange.ca.gov/documents/2007-09-19_OPR_PRESENTATION.PDF.

Oregon Department of Environmental Quality. 2002 Municipal Solid Waste Landfills by Quarter (2002). Available online at http://www.deq.state.or.us/wmc/solwaste/data/2002 dispbyquart.html. Accessed 10/10/05.

Pacific Gas and Electric Company (PG&E), 2006. General Information. Available online at http://www.pge.com/about_us/. Accessed November 29, 2006.

Parcel maps for Big Lagoon and Los Coyotes parcels.

Parr, Robert E. 1996. *An Archaeological Assessment of APN's 42-11-40 to 421-11-43, Barstow, san Bernardino County, California*. On file, San Bernardino Archeological Information Center.

Pigniolo, Andrew and John Dieter. 2000. Site Record for P-37-018821. On file, South Coastal Information Center, San Diego State University.

Pigniolo, Andrew and Mike Baksh. 2000~~2~~. *Cultural Resources Survey Report for the Los Coyotes Road Improvements, Los Coyotes Reservation, California*. Report on file, South Coastal Information Center, San Diego State University.

Pigniolo, Andrew, Stephanie Murray, and Josh Smallwood. 2002. *Cultural Resources Survey Report for the Los Coyotes Campground Hazardous Fuel Reduction Project, Los Coyotes Reservation, California*. Report on file, South Coastal Information Center, San Diego State University.

Pines Fire, Burned Area Emergency Stabilization and Rehabilitation Plan, August, 2002.

Questa Engineering (Questa), 2001a. Geologic Feasability Analysis. Questa Engineering, June 27, 2001.

Questa, 2001b. Phase I Environmental Site Assessment Big Lagoon Rancheria Gaming Facility. Questa Engineering, June 20, 2001.

Questa. 2002. Water Supply Report for Big Lagoon Rancheria Gaming Facility at Big Lagoon, Humboldt County.

Questa, 2007. Drainage and Water Quality Analysis for Barstow Casinos. March 2007.

Regional Air Quality Information for the Los Coyotes Reservation, December 2000.

Residential Disclosure Report for San Bernardino County regarding Parcel Numbers 0428-171-66-69.

Riddell, F. A., and W.H. Olsen, 1969. An Early man site in the San Joaquin Valley. American Antiquity 34(2): 121-130.

Rosenthal, Jane, and Beth Padon. 1993. *Archaeological Inventory and Survey Assessment Lenwood Road Extension, Barstow, San Bernardino County, Ca*. On File, San Bernardino Archaeological Information Center, Redlands, California.

San Bernardino County. 1989. San Bernardino County General Plan – Updated March 27, 2003.

San Bernardino County, 2011. *Property Information Management System Internet Site.* Available online at: http://nppublic.co.san-bernardino.ca.us/newpims/PimsInterface.aspx. Accessed on March 28, 2011.

San Diego County. 1979. San Diego County General Plan. Adopted January 3, 1979. Amended April 17, 2002. Available online at: http://www.sdcounty.ca.gov/dplu/generalplan.html . Accessed November 16, 2006.

San Diego County. 2003. Impacts of Tribal Economic Development Projects in San Diego County – Updated April, 2003.

San Diego County. 2004. *North Mountain Community Planning Area Existing General Plan Map*. Prepared by the San Diego County Department of Planning and Land Use and SanGIS. printed August 29, 2004. Available online at: http://www.sangis.org/LibraryService/DownloadedFiles/1gpcpanorthmt.jpg Accessed 3/28/2007.

San Diego County, 2011. DEIS Comments, Los Coyotes Band of Cahuilla and Cupeño Indians Fee-To-Trust and Casino-Hotel Project. Included in Volume II of the EIS/TEIR as Comment Letter A8.

San Diego County Air Pollution Control District (SDCAPCD). 2005. *Climate and Smog Fact Sheet*, SDCAPCD, January 2005

SDCAPCD, 2010. Attainment status. Available online at http://www.sdapcd.org/info/facts/attain.pdf Accessed June 2010.

San Diego County Sheriff's Department. 2009. General Information. Available online at: http:// www.sdsheriff.net/documents/2009_report.pdf. Accessed June 2010.

San Diego Regional Water Quality Control Board (SDRWQCB). 2007. *Water Quality Control Plan for the San Diego Basin.* Amended April, 2007. Available online at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml. Accessed February 18, 2009.

Saracino, Kirby, Snow. 2002. *Regional Water Management Plan Update.* Report prepared for the Mojave Water Agency.

Shingle Springs Rancheria Interchange (SSRI), 2001. *Traffic Operation Analysis, 2001*. Available online at: http://www.dot.ca.gov/dist3/projects/shingle/documents.htm. View on January 15, 2009.

Southern California Association of Governments (SCAG). 2003. Program Environmental Impact Report for the 2004 Regional Transportation Plan. December 2003. Available online at http://www.scag.ca.gov/rtpPEIR2004/draft/2004/pdf/3_9_Geology_Soils_Seismicity.pdf. Accessed March 29, 2007.

Southwest Gas Corporation, 2007. Southwest Gas Corporation 2007 Annual Report. Available online at: http://www.swgas.com/investorrelations/shareholder/documents/a2005/SWG _AR_2005.pdf. Accessed November 29, 2006.

Springer and Anderson, Inc. 1998. Environmental Assessment – A Visual Assessment of the Los Coyotes Indian Reservation. October 1998.

Springer and Anderson, Inc. 2002. Final Tribal Unified Watershed Assessment for the Los Coyotes Band of Indians. October 2002.

Stricler, G. H., 1970. Site Record for CA-SBR-2289. On file, San Bernardino Archaeological Information Center, Redlands, California.

Strong, William D. 1929. Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26(1):1-358.

Sutton, Mark Q. 1980. *A Class II Archaeological Study of a Portion of Stoddard Valley*. On file, San Bernardino Archaeological Information Center, Redlands, California.

Taylor, Jonathan B., Matthew B. Krepps, and Patrick Wang, 2000. *The National Evidence on the Socioeconomic Impacts of American Indian Gaming on Non-Indian Communities*. April 2000. Available online at: http://www.hks.harvard.edu/hpaied/docs/PRS00-1.pdf

Tierra Environmental Services, Inc., 2002. Draft Environmental Assessment - A Fire Presuppression Project Located on the Los Coyotes Indian Reservation, San Diego County, California. May 31, 2002.

Transportation Research Board, 2000. Highway Capacity Manual. Available online at http://www.trb.org/Main/Blurbs/Highway_Capacity_Manual_2000_152169.aspx Accessed June 2010.

Underhill, Scott 2006. Chief of Compliance with the San Diego County Air Pollution Control District. Telephone interview May 3, 2006.

U.S. Census Bureau. 2000. *Profiles from the 2000 and 1990 Decennial Censuses*

U.S. Census Bureau. 2003a. *State and County QuickFacts.*

U.S. Census Bureau, 2008. *2006-2008 American Community Survey 3-Year Estimates.* Accessed on March 4, 2010. Available online at: http://factfinder.census.gov/home/saff/main.html?_lang=en

U.S. Department of Agriculture (USDA). 1979. Soil Survey of San Diego County, California. Natural Resources Conservation Service. 1979.

USDA. 1986. Soil Survey of San Bernardino County, California, Mojave River Area. Natural Resources Conservation Service. February 1986.

USDA. 1999. California Annual Precipitation, scale 1:850,000, 1 sheet.

U.S. Department of Labor, 2007. Inflation Calculator. Consumer Price Indexes. Available online at http://data.bls.gov/cgi-bin/cpicalc.pl/ Accessed April 9, 2007.

United States Fish and Wildlife Service (USFWS). 1997. Draft Recovery Plan for the Stephen's Kangaroo Rat. April, 1997.

USFWS. 1998. Draft Recovery Plan for the Least Bell's Vireo (Vireo bellii pusillus). Available online at http://ecos.fws.gov/docs/recovery_plans/1998/980506.pdf

USFWS. 2002a. Recovery Plan for the California Red-legged Frog (Rana aurora draytonii), dated 5/28/2002. Available online at http://ecos.fws.gov/docs/recovery_plans/2002/020528.pdf

USFWS. 2002b. Final Recovery Plan Southwestern Willow Flycatcher (Empidonax traillii extimus), dated August 2002. Available online at http://ecos.fws.gov/docs/recovery_plans /2002/020830c.pdf

USFWS. 2004. Draft Recovery Plan for the Tidewater Goby (Eucyclogobius newberryi). U.S. Fish and Wildlife Service, Portland, Oregon. vi + 163pp.

USFWS. 2005. Recovery Plan for the Tidewater Goby (Eucyclogobius newberryi), dated 12/7/05.

USFWS. 2006a. Federally Listed Species Which Occur or May Occur on or Near the Los Coyotes Indian Reservation, San Diego County, California. USFWS, Carlsbad office. April 19, 2006.

USFWS. 2006b. FWS Critical Habitat for Threatened and Endangered Species, online mapper. Updated December 6, 2006. Available online at http://crithab.fws.gov/

USFWS. 2009. Federally Listed Species Which Occur or May Occur on or Near the Barstow Project Site, San Bernardino County, California. USFWS, Ventura office. February 20, 2009.

USFWS, 2010. Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (Gopherus agassizii), 2010 Field Season. Available from http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt/DT%20Pre-project%20Survey%20Protocol_2010%20Field%20Season.pdf Accessed August 4, 2010.

U.S. Geological Survey (USGS). 1960. Geologic map of the Barstow quadrangle, San Bernardino County, California. San Diego County, California. 1960.

USGS. 1998. Water Resources and Geology of the Los Coyotes Indian Reservation and Vicinity, San Diego County, California. October 1998.

USGS. 2005. Tsunamis and Earthquakes. Available online at http://walrus.wr.usgs.gov/tsunami/ srilanka05/measurements.html. Last updated February 14, 2005. Accessed March 29, 2007.

USGS. 2006. The Richter Magnitude Scale. Available online at http://earthquake.usgs.gov/learning/ topics/richter.php/ Last updated November 17, 2006. Accessed April 11, 2007.

USGS and California Geological Survey (CGS). 2006. Quaternary fault and fold database for the United States. Available online at http//earthquake.usgs.gov/regional/qfaults/. Last updated March 27, 2006. Accessed March 29, 2007.

University of California at Davis (UC Davis). 1996. Transportation Project-Level Carbon Monoxide Protocol. Institute of Transportation Studies. Davis, California.

University of Wisconsin Center for NanoTechnology (UWCNTech). 2004. Material Safety Data Sheet: Citric Acid. Available online at: http://www.nanotech.wisc.edu/CNT_LABS/ MSDS/Acids/MSDS%20Citric%20acid%20crystal.htm. Last updated February 5, 2004. Accessed February 26, 2007.

Urban Emissions (URBEMIS), 2007. Air quality modeling program, approved by the EPA and CARB, 2007. Available online at: http://www.urbemis.com/Warner Unified School District (WUSD), 2010. General Information. Available online at: http://www.sdcoe.k12.ca.us/districts/warner/elem.asp. Accessed May 19, 2010.

Warren, Claude N. 1984. The Desert Region. In *California Archaeology*, edited by Michael Moratto, Pp. 471-526. Academic Press, San Francisco.

Western Regional Climate Center (WRCC). 2005. WRCC Desert Research Institute, Climate Available online at http://www.wrcc.dri.edu. Accessed May 2006.

Western Regional Climate Center (WRCC). 2008. Western U.S. Historical Climate Summaries, Southern California, Barstow. Climate Available online at http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0519. Accessed February 23, 2008.

CHAPTER 8.0

REFERENCES

SECTION 8.0 REFERENCES CITED

Analytical Environmental Services (AES). 2012. *Los Coyotes Casino Casinos Project Cultural Resources Study-Barstow Site.* Analytical Environmental Services. Sacramento, CA.

AES. 2010. *Los Coyotes Casino Casinos Project Cultural Resources Study-Los Coyotes Reservation Site.* Analytical Environmental Services. Sacramento, CA.

Association of Environmental Professionals (AEP). 2007. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.* Available online at: http://www.csac.counties.org/images/public/Advocacy/ag_natres/AEP_Global_Climate_Change_June_29_Final%5B1%5D.pdf. Accessed June 2007.

Analysis Group, 2007. *The Potential Economic and Fiscal Impacts of the Proposed Barstow Casinos.* May, 2007.

Anderson, Marc, P.E. 1998. Preliminary Engineering Report, Los Coyotes Band of Indians, Domestic Water System Rehabilitation – Phase I, Lower Community Water System. June 1998.

Ballog, A.P. and W.R. Moyle. 1980. Water Resources and Geology of the Los Coyotes Indian Reservation and Vicinity, San Diego County, California, U.S. Geological Survey Open File Report 80-960.

Barbour, Belinda. 2006. Solid Waste Department, City of Barstow. Email communication June 15, 2006.

Barbour, Belinda. 2009. Solid Waste Department, City of Barstow. Email communication February 26, 2009.

Barstow Fire Protection District (BFPD), 2006. District Boundaries Map. Available online at http://www.barstowfire.com/Large2006%20Boundries.htm Accessed June 2010.

Bay Area Air Quality Management District (BAAQMD), 2006. Source Inventory of Bay Area Greenhouse Gas Emissions, San Francisco CA, 2006.

Bean, Lowell J. 1978. Cahilla. In *California*, edited by Robert F. Heizer, pp. 575-587. Handbook of North American Indians, vol. 8, William C. Sturtevart, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J. and Charles Smith. 1978. Cupeno. In *California*, edited by Robert F. Heizer, pp. 588-591. Handbook of North American Indians, vol. 8, William C. Sturtevart, general editor. Smithsonian Institution, Washington, D.C.

Beck, J. L. 1971 A chipped stone crescent from Tracy Lake, California. Los Angeles: The Masterkey 45(4): 154 -156.

Bedwell, S.F., 1973. Fort Rock Basin: Prehistory and Environment. University of Oregon Books, Eugene, Oregon.

Benadict, Ruth. 1924. A Brief Sketch of Serrano Culture. *American Anthropologist* 26(3):366-392.

Benadict, Ruth. 1926. Serrano Tales. *Journal of American Folk-Lore* 39(151):1-17.

Beranek, L.L. 1998. *Noise and Vibration Control*. Institute of Noise Control Engineering. McGraw Hill.

Bergman, Walls & Associates. 2009. Project Areas Tabulation, Alternative A. 20 Apr 2009

Bergman, Walls & Associates, 2010. Project Areas Tabulation Alternative B. 2010.

Bolt, Bruce A. 1988. *Earthquakes*. W. H. Freeman and Company, New York. 1988.

Bookman-Edmonston Engineering, Inc. (BEE). 1994. *Regional Water Management Plan.* Apple Valley, California: Mojave Water Agency.

Brown Buntin Associates, Inc. (BBA). 2004. *Environmental Noise Analysis, Graton Rancheria Casino, Sonoma County, California*. BBA Project No. 04-244. December 13, 2004.

Bureau of Indian Affairs (BIA). 2005. *American Indian Population and Labor Force Report*. U.S. Department of Interior, Bureau of Indian Affairs, Office of Indian Services. Available online at: http://www.doi.gov/bia/labor.html. Accessed January 2009.

Bureau of Land Management (BLM). 2006a. West Mojave Habitat Conservation Plan Species Accounts: Desert Tortoise. Available online at http://www.blm.gov/ca/cdd/wemo_species_rept_am.html. Accessed April 26, 2006

BLM. 2006b. Stoddard Valley Off-Highway Vehicle Area Information. Available online at: http://www.blm.gov/ca/barstow/stoddard.html. Accessed November 29, 2006.

BLM. 2007. Personal Communication with Charles Sullivan, Natural Resource Specialist. January 8, 2007.

Burns, Dianne, 2009. Chief of Police. Email correspondence on February 27, 2009.

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA and Climate Change-Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* Available online at: http://www.capcoa.org. Accessed, January 2008.

CARB. 2005. *Ambient Air Quality Standards for Particulate Matter.* Available online at: http://www.arb.ca.gov/research/aaqs/pm/pm.htm. Accessed February 2009. Updated June 14, 2005.

CARB. 2006c. CARB Facility Search Engine. Available online at http://www.arb.ca.gov/ei/ disclaim.htm. Accessed May 2006.

CARB, 2007a. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*, October 2007.

CARB, 2007b. Climate Change Scoping Plan, 2007. Available at http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Viewed on January 2008.

CARB, 2007c. The Greenhouse Effect and California. Available online at: http://www.arb.ca.gov/cc/facts/facts.htm. View on February 4, 2009.

CARB, 2008. Climate Change Scoping Plan 2008. Available online at http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm. Viewed on January 14, 2009.

CARB. 2009a. *BarstowArea Attainment Status.* Available online at: http://www.mdaqmd.ca.gov/rules_plans/documents/CEQAGuidelines.pdf. Viewed on January 14, 2009.

CARB. 2009b. *San DiegoArea Attainment Status.* Available online at: http://www.sdapcd.org/info/facts/attain.pdf. Viewed on January 14, 2009.

CARB, 2009c. iADAM Air Quality Data Statistics, 1963 - 2009. Available online at http://www.arb.ca.gov/adam/topfour/topfour1.php Accessed May 2010

CARB, 2009d. Almanac Emissions Projection Data Published 2009. Available online at http://www.arb.ca.gov/app/emsinv/emssumcat.php Accessed May 2010.

California Climate Action Registry, 2009. General Reporting Protocol Version 3.1, 2009. Available online at: http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html. Accessed December, 2009.

California Department of Conservation (CDOC). 2006. Williamson Act Program. Division of Land Resource Protection. Available online at http://www.consrv.ca.gov/DLRP/ lca/index.htm. Accessed July 24, 2006

California Department of Finance (DOF). 2010. *E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2009 and 2010.* Sacramento, California, May,

2010. Available online at http://www.dof.ca.gov/research/demographic/reports/estimates/e-1_2006-07/ .

California Department of Fish and Game (CDFG). 2003. RareFind 3.0.5, California Natural Diversity Data Base. Wildlife and Habitat Data Analysis Branch, Sacramento, California.

CDFG. 2005. California Wildlife Habitat Relationship System, Database Version 8.1, 2005. Available online at http://www.dfg.ca.gov/whdab/html/cawildlife.html.

California Department of Housing and Community Development. 1996. *1996 Field Directory of the California Indian Community*. Department of Housing and Community Development, State of California, Sacramento.

California Department of Transportation (Caltrans). 2005. *2005 Traffic Volumes on California State Highways.* Available online at: http://traffic-counts.dot.ca.gov/2005all.htm.

Caltrans. 2007. *The California Scenic Highway System*. Available online at http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm/ Accessed April 10, 2007.

Caltrans, 2009a. Technical Noise Supplement. Available online at http://www.dot.ca.gov/hq/env/noise/index.htm Accessed March, 2010.

Caltrans, 2009b. *Traffic* Volumes on State Route 15. Available online at: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2006all/r012-15i.htm. Viewed on January 15, 2009.

California Department of Water Resources (DWR). 2003. *Middle Mojave River Valley Groundwater Basin.* California's Groundwater Bulletin 118.

DWR. 2004a. *North Coast Hydrologic Region: Big Lagoon Area Groundwater Basin.* California's Groundwater Bulletin 118.

DWR. 2004b. *Hydrologic Region South Coast: Warner Valley Groundwater Basin.* California's Groundwater Bulletin 118.

DWR. 2008. Groundwater Level Data. Available online at http://wdl.water.ca.gov/gw/. Accessed February 23, 2009.

California Native Plant Society. 2009. Inventory of Rare and Endangered Plants-.Sacramento, California. Available online at: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Last Accessed on February 11, 2009.

CMP, 2003. *Congestion Management Program for San Bernardino County, 2003 Update*. Prepared by San Bernardino Associated Governments. December 3, 2003. Available online at http://www.sanbag.ca.gov/planning/cmp/cmp_preface.pdf. Accessed March 29, 2007.

California Geological Survey (CGS). 2007. Alquist-Priolo Earthquake Fault Zones. Available online at http://www.consrv.ca.gov/CGS/rghm/ap/index.htm. Last updated January 29, 2007. Accessed March 28, 2007.

California Integrated Waste Management Board (CIWMB). 2007a. California Waste Stream Profiles. Available online at http://www.ciwmb.ca.gov/Profiles/Juris/. Accessed January 16, 2007.

CIWMB. 2007b. Reporting Indian Country Waste. California Integrated Waste Management Board (CIWMB). Available online at http://www.ciwmb.ca.gov/LGCentral/DRS/ Indian.htm. Accessed January 16, 2007

CIWMB. 2009. *Solid Waste Information System – Facility/Site Search*. Available online at: http://www.ciwmb.ca.gov/SWIS/Search.asp. Accessed February 2009

California Native Plant Society (CNPS). 2006a. Inventory of Rare and Endangered Plants of California, Version 7. Rodgers Peak quad and eight surrounding quads, California.

CNPS. 2006b. Inventory of Rare and Endangered Plants of California, Version 7. Hot Springs Mountain quad and eight surrounding quads, California.

Carrao, Salvatore, 2006. Division Chief of Operations Barstow Fire Department. Correspondence dated April 24, 2006.

Carrao, Salvatore, 2009. Division Chief of Operations Barstow Fire Department. Correspondence dated February 24, 2009.

Casino Market Assessment Update: Big Lagoon Rancheria, California, December 2001.

Climate Action Team (CAT), 2007. *Climate Action Team Proposed Early Actions to Mitigate Climate Change in California*, 2007.

City of Barstow. 1988. Lenwood Specific Plan. August 1988. Available online at: http://www. barstowca.org/Uploads/LenwoodSpecificPlan.pdf. Accessed March 28, 2007.

City of Barstow. 1997. City of Barstow General Plan. July 1997. Available online at: http://www. barstowca.org/Uploads/GeneralPlan.pdf. Accessed March 28, 2007.

City of Barstow, 2000. Zoning Map.

City of Barstow. 2006a. History. Available online at http://www.barstowca.org/AboutBarstow. Accessed April 2006.

City of Barstow. 2006c. Map of Land Use Designations for the Lenwood Specific Plan area. From Mike Massimini, City of Barstow Planning Department.

City of Barstow Fire Protection District (BFPD). 2007. Master Plan. Available online at http://www.barstowfire.com/BFPD%20MASTER%20PLAN.pdf. Accessed on February 26, 2009.

City of Barstow. 2008. Request for Statements of Qualifications for the Design-Build Project Delivery of Improvements at the Municipally Owned Wastewater Reclamation Facility. Available at http://www.barstowca.org/Uploads/RFP_RFQWRFDesignedBuild.pdf. Accessed on February 27, 2009.

City of Barstow, 2009. General Plan Land Use Policy Map. June 1997, revised March 2009. Available online at: http://www.barstowca.org/site/images/pdf/General_Plan_Map.pdf. Accessed June 2010.

City of Barstow. 2010. Current Development Packet. City of Barstow Planning Department – Michael Massimini, City Planner. Last updated August 1, 2009.

Congressional Budget Office (CBO), 2010. The Budget and Economic Outlook: Fiscal Years 2010 to 2020. January 2010. Available online at: http://www.cbo.gov/ftpdocs/108xx/doc10871/01-26-Outlook.pdf

Council of Economic Advisers, 2010. Economic Report of the President: Transmitted to Congress February 2010 together with the Annual Report of the Council of Economic Advisers. United States Government Printing Office. Washington: 2010. Page 75. Available online at: http://www.whitehouse.gov/sites/default/files/microsites/economic-report-president.pdf

Council on Environmental Quality (CEQ), 1997a. Considering Cumulative Effects Under the National Environmental Policy Act. Council on Environmental Quality (CEQ). January 1997.

Council on Environmental Quality (CEQ), 1997b. Environmental Justice Guidance Under the National Environmental Policy Act. Council on Environmental Quality (CEQ). December 10, 1997.

County of San Bernardino. 2006. Barstow Sanitary Landfill Expansion Project Draft Environmental Impact Report. Available at http://www.sbcounty.gov/landuseservices/Public%20Notices/Projects/Projects.htm. Accessed on February 27, 2009.

Collins, Chris. 2006. Supervisor of Compliance with the Mojave Desert Air Quality Management District. Telephone interview May 3, 2006.

Davis, E.L. and J. Richard Shutler, 1969. *Recent Discoveries of Fluted Points in California and Nevada*. Nevada State Museum Anthropological Papers 14. Miscellaneous Papers on Nevada Archaeology 1-8:155-177

Davis, E.1978. *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*. Natural History Museum of Los Angeles County, Science Series 29, Los Angeles.

Davis, Jason. 2006. Interim Air Pollution Control Officer with the North Coast Unified Air Quality Management District. Telephone interview May 3, 2006.

Downey, Mike. 2005. Lieutenant Commander in Charge of Patrol Operations. Telephone Interview August 2005.

Drucker, Phillip. 1937. Culture Element Distributions, V: Southern California. *University of California Anthropological Records* 1(1):1-52.

Ed-Data, 2010. *Education Data Partnership (Ed-Data) – Fiscal, Demographic, and Performance Data on California's K-12 Schools*. Available online at http://www.ed-data.k12.ca.us. Accessed May 19, 2010.

Employment Development Department (EDD), 2010. *LaborMarketInfo-Data Library*. Accessed on: May 19, 2010. Available online at: http://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/AreaSelection.asp?tableName=Labforce.

Environmental Data Resources (EDR). 2006a. Barstow Site, Barstow, CA. EDR Radius Map Report with Geocheck®, March 29, 2006.

EDR. 2006b. Los Coyotes Site, Ranchita, CA. EDR Radius Map Report with Geocheck®, April 4, 2006.

EDR, 2009a. Barstow Site, Barstow, CA. EDR Radius Map Report with Geocheck®, February 16, 2009.

EDR, 2009b. Los Coyotes Site, Warner Springs, CA. EDR Radius Map Report with Geocheck®, February 16, 2009.

Environmental Protection Agency (EPA), 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. April 1998.

EPA, 2006. 40 CFR § 93.153 (b)(1), *Conformity Thresholds*.

EPA, 2006. EPA Toxic Release Inventory. Available online at http://www.epa.gov/triexplorer. Accessed May 2006.

EPA 2010. National Ambient Air Quality Standards. Updated June 02, 2010. Available online at http://www.epa.gov/air/criteria.html Accessed June 2010.

Environmental Science Associates (ESA). 2004. Mojave Water Agency 2004 Regional Water Management Plan Draft Program Environmental Impact Report. September 2004.

Federal Bureau of Investigation (FBI). 2006. Crime in the United States 2005. Table 8 – Offenses Known to Law Enforcement. Release Date: September 2006. Available at: http://www.fbi.gov/ucr/05cius/. Accessed May 14, 2010.

Federal Emergency Management Agency (FEMA). 1982. Flood Insurance Rate Map (Humboldt County). Map Number 0600600300B. July 19, 1982. Available online at http://msc.fema. gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1. Accessed December 4, 2006.

FEMA. 2008. Flood Insurance Rate Map (San Bernardino County). Map Number 06071C4527H. August 28, 2008. Available online at http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=29370171&IFIT=1. Accessed February 23, 2009.

FEMA. 2006. Flood Insurance Rate Map (San Diego County). Map Number 06073C0625F. September 29, 2006. Available online at: http://msc.fema.gov/webapp/wcs/stores/servlet/ FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1. Accessed December 4, 2006.

Federal Highway Administration (FHWA). 2004. *Manual of Uniform Traffic Control Devices 2003 California Supplement.* May 20, 2004.

FHWA, 2006. Interim Guidance on Air Toxic Analysis in NEPA Documents. February 3, 2006. Available online at http://www.fhwa.dot.gov/ environment/airtoxic/020306guidmem.htm. Accessed February 7, 2007.

Federal Highway Administration, 2010. Highway Traffic Noise: Analysis and Abatement Guidance. Available online at: http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_ guidance/revguidance.pdf. Viewed on January 11, 2011.

Golden State Water Company (GSWC). 2005. 2005 Urban Water Management Plan – Barstow. Final Report December 2005. Prepared by CH2M Hill.

Grenda, Donn, 1993. Archaeological Treatment Plan for CA-RIV-2798/H, Lake Elsinore, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Gudde, Erwin G. 1990. *California Place Names: The Origin and Etymology of Current Geographical Names.* Fourth edition revised and enlarged by William Bright. University of California Press, Berkeley.

Guidelines for CMP Traffic Impact analysis Reports in San Bernardino County – 2005 update.

Harpole, Rich. 2006. Lieutenant with the Barstow Police Department. E-mail communication. April 26, 2006.

Harrington, M. R. and R. D. Simpson, 1948. An ancient site at Borax Lake, California. Los Angeles: Southwest Museum Pap16:1-126.

Hawks, D. and G. Ballmar. 1997. The Quino Checkerspot Butterfly *Euphydras editha quino*. Prepared November 1997. Unpublished report.

Heizer, Robert F. and Franklin Fenega. 1939. Archaeological Horizons in Central California. *American Anthropologist* 41(3):378-399.

Hickman, 1993. *The Jepson Manual*. Hickman, James C. (ed.). University of California Press, Berkeley, CA.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Resources Agency, California State Department of Fish and Game, Natural Heritage Division. October, 1986.

Hoover, M.B., H.E. Rensch, E.G. Rensch, and W.N. Abeloe. 1990. *Historic Spots in California*. Fourth edition, revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Houston, J.R. and A.W. Garcia. 1978. Type 16 Flood Insurance Study: Tsunami Predictions for the West Coast of the Continental United States: U.S. Army Engineer Waterways Experiment Station, Technical Report H-78-26.

Humboldt County. 2002. Humboldt County Wildland Fire Rating Map. Available online at: http://www.co.humboldt.ca.us/planning/maps/fire_plan/firerating.pdf. Accessed November 29, 2006.

Humboldt County. 2005. *Master Fire Protection Plan September 2005 Draft*. Viewed 9/22/2005. Available at: http://www.co.humboldt.ca.us/planning/fire_safe_council/fsc_default.asp

Humboldt County. 2006. Interactive Housing Inventory Mapping System. Available online at: http://www.co.humboldt.ca.us/planning/maps/landinvgis.asp. Accessed June 21, 2006.

HydroScience Engineers, Inc (HSe). 2006. Barstow Hotel and Casino Water and Wastewater Feasibility Study. Sacramento, CA. October 2006.

HSe. 2007. Barstow Casinos Water and Wastewater Feasibility Study (Draft). Sacramento, CA. February 2007.

JCP Geologists (JCP). 2001. Hazard Information – Expansive Soils. Available online at http://www.jcpreports.com/html/articles/expsoil.html/ Last updated 2001. Accessed April 11, 2007.

Captain Johnson. 2009. Captain of CDF Warner Springs Station. Telephone Interview on February 24, 2009.

Jones, Jason. 2006. CDF Firefighter Warner Springs Station. Telephone Interview with Jason Jones and Captain Johnson. September 22, 2006.

Justice, Noel D. 2002. *Stone Age Spear and Arrow Points of California and the Great Basin*. Indiana University Press.

Kroeber, Alfred L. 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C. Reprinted 1976 by Dover, New York.

Kunzman, 2007. *Barstow Casinos Project, Los Coyotes Reservation Alternative, Traffic Impact Analysis*. Kunzman Associates, February 15, 2007.

Lahontan Regional Water Quality Control Board (LRWQCB). 2002. *Watershed Management Initiative*

LRWQCB. 2005. *Water Quality Control Plan for the Lahontan Region: North and South Basins.* Lahontan Regional Water Quality Control Board. Amended July, 2005. Available online at: < http://www.swrcb.ca.gov/rwqcb6/water_issues/programs/basin_plan/references.shtml >

Land Title Survey maps for Barstow site.

Linscott, Law, & Greenspan (LL&G), 2010. *Los Coyotes Casino, Traffic Impact Analysis*. LL&G engineers, January 2010.

Live Oak Associates, Inc. 2001. Big Lagoon Rancheria Proposed Gaming Facility Biotic Analysis.

Los Coyotes Band of Indians Environmental Review Record. June 2004.

Maps of California Ozone (O_3) and Carbon Monoxide Nonattainment Areas, Los Coyotes, November, 1998.

Marc Anderson, Inc. 2004. Preliminary Water Management Plan, Los Coyotes Reservation. May 2004.

McGuire, Kelly R. 1990. *A Cultural Resources Inventory and Limited Evaluation of a Proposed Mojave Pipeline Corridor in California and Arizona.* Report on File, San Bernardino Archaeological Information Center, Redlands, California.

McGuire, Kelly R. and Leslie Glover, 1991. *A Cultural Resources Inventory of a Proposed Natural Gas Pipeline From Adelantro to Ward Valley, San Bernardino County, California*. Report on File, San Bernardino Archaeological Information Center, Redlands, California.

McGuire, Kelly R. and Leslie Anderson. 1998. *A Cultural Resources Inventory of a Proposed Natural Gas Pipeline From Adelantro to Ward Valley, San Bernardino County, California*. Report on File, San Bernardino Archaeological Information Center, Redlands, California.

Meighan, C. W. and C. V. Haynes, 1970. The Borax Lake site revisited. Science 167 (3922):1213-1221

Merrell Engineering Company. 2003. Phase I Environmental Investigation. August 2003.

Michigan Consultants, 2003. Casino Market Feasibility Study, Los Coyotes Band of Cahuilla Indians. September, 2003.

Michigan Consultants, 2006. Market and Economic Impact Analysis for Co-located Native American Casinos in the City of Barstow. June 2006 Draft.

Michigan Consultants, 2010. Los Coyotes Band of Cahuilla Indians. Construction costs, revenue, patrons, and employee estimates. June 2010.

Mohr, Niel, General Manager Allied Waste Ind. 2009. Personal Communication on February 23, 2009

Mojave Water Agency (MWA). 2004. 2004 Regional Water Management Plan. Volume I: Report.

Mojave Desert Air Quality Management District (MDAQMD) 2009. Federal Attainment Status. Available online at http://www.mdaqmd.ca.gov/ Accessed June 2010.

MWA, 2006. General Information. Available online at: http://www.mojavewater.org/. Accessed November 29, 2006.

MWA, 2009. Mojave Water Agency: About the Mojave Water Agency. Website available at: http://www.mojavewater.org/home/aboutContent.aspx. Accessed February 25, 2009.

Moorehead, Virgil. 2006. Tribal Chairperson Big Lagoon Rancheria. Telephone interview April 12, 2006.

Moratto, M. 1984. *California Archaeology*. Academic Press, San Francisco.

National Gambling Impact Study Commission (NGISC). 1999. Final Report. Available online at: http://govinfo.library.unt.edu/ngisc/. Site accessed February 7, 2009.

National Park Service (NPS), 1990. How to Apply the National Register Criteria for Evaluation. National Register Bulletin #15. U.S. Department of the Interior, Washington D.C.

National Research Council (NRC). 2000. Highway Capacity Manual Special Report 209, Transportation Research Board. Washington, D.C., 2000

Natural Resources Conservation Service (NRCS). 2006. Definitions. Available online at: http://www.nrcs.usda.gov/Technical/land/meta/m6175.html. Last updated November 15, 2006. Accessed November 21, 2006.

National Opinion Research Center (NORC). 1999. *Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission. April 1, 1999.* Available online at: http://cloud9.norc.uchicago.edu/dlib/ngis.htm. Accessed January 2009.

Office of the California Attorney General, 2007. Global Warming Mitigation Measures, 2007.

Office of Historic Preservation (OHP). 1976. California Inventory of Historic Resources. Department of Parks and Recreation, Sacramento.

OHP. 1988. *Five Views: An Ethnic Historic Site Survey for California*. State of California Department of Parks and Recreation, Sacramento.

OHP. 1990. *California Historical Landmarks*. State of California Department of Parks and Recreation, Sacramento.

OHP. 1992. *California Points of Historical Interest*. State of California Department of Parks and Recreation, Sacramento.

OHP. 2006a. Historic Properties Directory File for San Bernardino County. San Bernardino Archaeological Information Center, California Historical Resources Information System, San Bernardino County Museum, Redlands, California.

OHP. 2006b. Historic Properties Directory File for San Diego County. South Coastal Information Center, California Historical Resources Information System, Social Sciences Research Laboratory, San Diego, California.

Office of Planning and Research (OPR), 2007. *Climate Change and CEQA: Presenatation to the Climate Action Team*. Presented by Cynthia Bryant, Director, Governor's Office of Planning and Research (OPR). September 19, 2007. Accessed at: http://climatechange.ca.gov/documents/2007-09-19_OPR_PRESENTATION.PDF.

Oregon Department of Environmental Quality. 2002 Municipal Solid Waste Landfills by Quarter (2002). Available online at http://www.deq.state.or.us/wmc/solwaste/data/2002 dispbyquart.html. Accessed 10/10/05.

Pacific Gas and Electric Company (PG&E), 2006. General Information. Available online at http://www.pge.com/about_us/. Accessed November 29, 2006.

Parcel maps for Big Lagoon and Los Coyotes parcels.

Parr, Robert E. 1996. *An Archaeological Assessment of APN's 42-11-40 to 421-11-43, Barstow, san Bernardino County, California*. On file, San Bernardino Archeological Information Center.

Pigniolo, Andrew and John Dieter. 2000. Site Record for P-37-018821. On file, South Coastal Information Center, San Diego State University.

Pigniolo, Andrew and Mike Baksh. 2000. *Cultural Resources Survey Report for the Los Coyotes Road Improvements, Los Coyotes Reservation, California*. Report on file, South Coastal Information Center, San Diego State University.

Pigniolo, Andrew, Stephanie Murray, and Josh Smallwood. 2002. *Cultural Resources Survey Report for the Los Coyotes Campground Hazardous Fuel Reduction Project, Los Coyotes Reservation, California*. Report on file, South Coastal Information Center, San Diego State University.

Pines Fire, Burned Area Emergency Stabilization and Rehabilitation Plan, August, 2002.

Questa Engineering (Questa), 2001a. Geologic Feasability Analysis. Questa Engineering, June 27, 2001.

Questa, 2001b. Phase I Environmental Site Assessment Big Lagoon Rancheria Gaming Facility. Questa Engineering, June 20, 2001.

Questa. 2002. Water Supply Report for Big Lagoon Rancheria Gaming Facility at Big Lagoon, Humboldt County.

Questa, 2007. Drainage and Water Quality Analysis for Barstow Casinos. March 2007.

Regional Air Quality Information for the Los Coyotes Reservation, December 2000.

Residential Disclosure Report for San Bernardino County regarding Parcel Numbers 0428-171-66-69.

Riddell, F. A., and W.H. Olsen, 1969. An Early man site in the San Joaquin Valley. American Antiquity 34(2): 121-130.

Rosenthal, Jane, and Beth Padon. 1993. *Archaeological Inventory and Survey Assessment Lenwood Road Extension, Barstow, San Bernardino County, Ca*. On File, San Bernardino Archaeological Information Center, Redlands, California.

San Bernardino County. 1989. San Bernardino County General Plan – Updated March 27, 2003.

San Bernardino County, 2011. *Property Information Management System Internet Site.* Available online at: http://nppublic.co.san-bernardino.ca.us/newpims/PimsInterface.aspx. Accessed on March 28, 2011.

San Diego County. 1979. San Diego County General Plan. Adopted January 3, 1979. Amended April 17, 2002. Available online at: http://www.sdcounty.ca.gov/dplu/generalplan.html . Accessed November 16, 2006.

San Diego County. 2003. Impacts of Tribal Economic Development Projects in San Diego County – Updated April, 2003.

San Diego County. 2004. *North Mountain Community Planning Area Existing General Plan Map*. Prepared by the San Diego County Department of Planning and Land Use and SanGIS. printed August 29, 2004. Available online at: http://www.sangis.org/LibraryService/DownloadedFiles/1gpcpanorthmt.jpg Accessed 3/28/2007.

San Diego County, 2011. DEIS Comments, Los Coyotes Band of Cahuilla and Cupeño Indians Fee-To-Trust and Casino-Hotel Project. Included in Volume II of the EIS/TEIR as Comment Letter A8.

San Diego County Air Pollution Control District (SDCAPCD). 2005. *Climate and Smog Fact Sheet*, SDCAPCD, January 2005

SDCAPCD, 2010. Attainment status. Available online at http://www.sdapcd.org/info/facts/attain.pdf Accessed June 2010.

San Diego County Sheriff's Department. 2009. General Information. Available online at: http:// www.sdsheriff.net/documents/2009_report.pdf. Accessed June 2010.

San Diego Regional Water Quality Control Board (SDRWQCB). 2007. *Water Quality Control Plan for the San Diego Basin.* Amended April, 2007. Available online at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml. Accessed February 18, 2009.

Saracino, Kirby, Snow. 2002. *Regional Water Management Plan Update.* Report prepared for the Mojave Water Agency.

Shingle Springs Rancheria Interchange (SSRI), 2001. *Traffic Operation Analysis, 2001.* Available online at: http://www.dot.ca.gov/dist3/projects/shingle/documents.htm. View on January 15, 2009.

Southern California Association of Governments (SCAG). 2003. Program Environmental Impact Report for the 2004 Regional Transportation Plan. December 2003. Available online at http://www.scag.ca.gov/rtpPEIR2004/draft/2004/pdf/3_9_Geology_Soils_Seismicity.pdf. Accessed March 29, 2007.

Southwest Gas Corporation, 2007. Southwest Gas Corporation 2007 Annual Report. Available online at: http://www.swgas.com/investorrelations/shareholder/documents/a2005/SWG _AR_2005.pdf. Accessed November 29, 2006.

Springer and Anderson, Inc. 1998. Environmental Assessment – A Visual Assessment of the Los Coyotes Indian Reservation. October 1998.

Springer and Anderson, Inc. 2002. Final Tribal Unified Watershed Assessment for the Los Coyotes Band of Indians. October 2002.

Stricler, G. H., 1970. Site Record for CA-SBR-2289. On file, San Bernardino Archaeological Information Center, Redlands, California.

Strong, William D. 1929. Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26(1):1-358.

Sutton, Mark Q. 1980. *A Class II Archaeological Study of a Portion of Stoddard Valley*. On file, San Bernardino Archaeological Information Center, Redlands, California.

Taylor, Jonathan B., Matthew B. Krepps, and Patrick Wang, 2000. *The National Evidence on the Socioeconomic Impacts of American Indian Gaming on Non-Indian Communities*. April 2000. Available online at: http://www.hks.harvard.edu/hpaied/docs/PRS00-1.pdf

Tierra Environmental Services, Inc., 2002. Draft Environmental Assessment - A Fire Presuppression Project Located on the Los Coyotes Indian Reservation, San Diego County, California. May 31, 2002.

Transportation Research Board, 2000. Highway Capacity Manual. Available online at http://www.trb.org/Main/Blurbs/Highway_Capacity_Manual_2000_152169.aspx Accessed June 2010.

Underhill, Scott 2006. Chief of Compliance with the San Diego County Air Pollution Control District. Telephone interview May 3, 2006.

U.S. Census Bureau. 2000. *Profiles from the 2000 and 1990 Decennial Censuses*

U.S. Census Bureau. 2003a. *State and County QuickFacts.*

U.S. Census Bureau, 2008. *2006-2008 American Community Survey 3-Year Estimates.* Accessed on March 4, 2010. Available online at: http://factfinder.census.gov/home/saff/main.html?_lang=en

U.S. Department of Agriculture (USDA). 1979. Soil Survey of San Diego County, California. Natural Resources Conservation Service. 1979.

USDA. 1986. Soil Survey of San Bernardino County, California, Mojave River Area. Natural Resources Conservation Service. February 1986.

USDA. 1999. California Annual Precipitation, scale 1:850,000, 1 sheet.

U.S. Department of Labor, 2007. Inflation Calculator. Consumer Price Indexes. Available online at http://data.bls.gov/cgi-bin/cpicalc.pl/ Accessed April 9, 2007.

United States Fish and Wildlife Service (USFWS). 1997. Draft Recovery Plan for the Stephen's Kangaroo Rat. April, 1997.

USFWS. 1998. Draft Recovery Plan for the Least Bell's Vireo (Vireo bellii pusillus). Available online at http://ecos.fws.gov/docs/recovery_plans/1998/980506.pdf

USFWS. 2002a. Recovery Plan for the California Red-legged Frog (Rana aurora draytonii), dated 5/28/2002. Available online at http://ecos.fws.gov/docs/recovery_plans/2002/020528.pdf

USFWS. 2002b. Final Recovery Plan Southwestern Willow Flycatcher (Empidonax traillii extimus), dated August 2002. Available online at http://ecos.fws.gov/docs/recovery_plans /2002/020830c.pdf

USFWS. 2004. Draft Recovery Plan for the Tidewater Goby (Eucyclogobius newberryi). U.S. Fish and Wildlife Service, Portland, Oregon. vi + 163pp.

USFWS. 2005. Recovery Plan for the Tidewater Goby (Eucyclogobius newberryi), dated 12/7/05.

USFWS. 2006a. Federally Listed Species Which Occur or May Occur on or Near the Los Coyotes Indian Reservation, San Diego County, California. USFWS, Carlsbad office. April 19, 2006.

USFWS. 2006b. FWS Critical Habitat for Threatened and Endangered Species, online mapper. Updated December 6, 2006. Available online at http://crithab.fws.gov/

USFWS. 2009. Federally Listed Species Which Occur or May Occur on or Near the Barstow Project Site, San Bernardino County, California. USFWS, Ventura office. February 20, 2009.

USFWS, 2010. Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (Gopherus agassizii), 2010 Field Season. Available from http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt/DT%20Pre-project%20Survey%20Protocol_2010%20Field%20Season.pdf Accessed August 4, 2010.

U.S. Geological Survey (USGS). 1960. Geologic map of the Barstow quadrangle, San Bernardino County, California. San Diego County, California. 1960.

USGS. 1998. Water Resources and Geology of the Los Coyotes Indian Reservation and Vicinity, San Diego County, California. October 1998.

USGS. 2005. Tsunamis and Earthquakes. Available online at http://walrus.wr.usgs.gov/tsunami/ srilanka05/measurements.html. Last updated February 14, 2005. Accessed March 29, 2007.

USGS. 2006. The Richter Magnitude Scale. Available online at http://earthquake.usgs.gov/learning/topics/richter.php/ Last updated November 17, 2006. Accessed April 11, 2007.

USGS and California Geological Survey (CGS). 2006. Quaternary fault and fold database for the United States. Available online at http//earthquake.usgs.gov/regional/qfaults/. Last updated March 27, 2006. Accessed March 29, 2007.

University of California at Davis (UC Davis). 1996. Transportation Project-Level Carbon Monoxide Protocol. Institute of Transportation Studies. Davis, California.

University of Wisconsin Center for NanoTechnology (UWCNTech). 2004. Material Safety Data Sheet: Citric Acid. Available online at: http://www.nanotech.wisc.edu/CNT_LABS/MSDS/Acids/MSDS%20Citric%20acid%20crystal.htm. Last updated February 5, 2004. Accessed February 26, 2007.

Urban Emissions (URBEMIS), 2007. Air quality modeling program, approved by the EPA and CARB, 2007. Available online at: http://www.urbemis.com/Warner Unified School District (WUSD), 2010. General Information. Available online at: http://www.sdcoe.k12.ca.us/districts/warner/elem.asp. Accessed May 19, 2010.

Warren, Claude N. 1984. The Desert Region. In *California Archaeology*, edited by Michael Moratto, Pp. 471-526. Academic Press, San Francisco.

Western Regional Climate Center (WRCC). 2005. WRCC Desert Research Institute, Climate Available online at http://www.wrcc.dri.edu. Accessed May 2006.

Western Regional Climate Center (WRCC). 2008. Western U.S. Historical Climate Summaries, Southern California, Barstow. Climate Available online at http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0519. Accessed February 23, 2008.